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YÖNETİM VE ORGANİZASYON (İNGİLİZCE) BİLİM DALI

# DO AI-BASED TOOLS INCREASE TASK PERFORMANCE: THE MEDIATING ROLE OF TRUST AND DISCOMFORT

**Yüksek Lisans Tezi**

**Abdulkadir Furkan AYHAN**

**İSTANBUL, 2024**

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# ÖZET

## YAPAY ZEKÂ TEMELLİ UYGULAMALAR GÖREV PERFORMANSINI ARTTIRIR MI; GÜVEN VE RAHATSIZLIĞIN ARACI ROLÜ

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1940'lı yıllarda McCulloch & Pitts: Beynin Boolean devre modeli ile temellerinin atıldığı söylenen yapay zekâ hakkındaki görüşler her geçen gün gelişmekte ve değişmektedir. İlk olarak 1956'da adı konulan Yapay Zekâ, yıllar içinde konferanslara konu olmuş, endüstri ve bilim haline gelmiştir. Özellikle AlphaGo sonrasında kullanıcıların dikkatini daha çok çeken yapay zekâ uygulamaları, günümüzde işveren ve çalışanların yanı sıra birçok insanın merak ettiği bir konu haline gelmiştir (Russell, Norvig, 1995).

Özellikle son zamanlarda, teknolojinin hızla gelişmesi ve değişmesiyle, kurumlar, giderek yaygınlaşan dijitalleşme konusunu odaklarına almaktadırlar. Dijitalleşme kapsamında bugünün en önemli konusu yapay zekâ üzerine tanımlı uygulamalardır. Çalışmanın içerisinde de paylaşılan güncel grafiklere bakıldığında, yapay zekâ konuları üzerine eğilimin arttığı görülecektir.

Bu kapsamda, kurumlar, iş verenler, yapay zekâ temelli uygulamalar sayesinde mevcut süreçlerinde optimizasyon sürecine girmekte, maliyet optimizasyonu kapsamında, giderlerini azaltmakta çeşitli çalışmalar yapmaktadırlar. Rutin ve operatif konuları efektif ve verimli yöneten yapay zekâ uygulamaları tercih konusu olurken, çalışanların bu konudaki düşüncelerini, yapay zekâ ile uyumlarını göz önünde bulundurmamak çeşitli endişelere yol açmaktadır.

Özetle, çalışma bir çalışanın iş hayatında yapay zekâ temelli araçları kullanmasının görev performansını artırıp artırmadığını araştırırken, yapay zekâ konusundaki bilgi düzeyinin, yapay zekâya karşı tutumun, yapay zekâya olan güvenin ve yapay zekâdan duyulan rahatsızlık düzeyinin performansa etkilerini ortaya çıkarmayı amaçlamıştır.

Veriler, genel merkezi İstanbul'da bulunan Türkiye'nin önde gelen kurumsal firmalarından birinde yerinde, uzaktan ve hibrit modelde çalışan kişilerin katılımıyla derlenmiştir. Araştırmaya 106 çalışan katılmıştır, ancak verilen cevaplardaki tutarsızlıklar sebebiyle analizlere 96 katılımcı dahil edilmiştir. Katılımcılar ilgili firmanın Yapay Zekâ temelli uygulamasını aktif olarak kullanan ve bu

konuda geri dönüş verebilecek kişilerden oluşmaktadır. Oluşturulan hipotezlerin araştırılmasında güvenilirlik analizi, Açıklayıcı Faktör Analizi ve Model Testi kullanılarak veriler analiz edilmiş ve alınan çıktılar ayrı ayrı incelenmiştir. Yapılan incelemeler, gelecek çalışmalar için bir altyapı hazırlamak adına detaylıca açıklanmış, okuyucuya arz edilmiştir.

**Anahtar Kelimeler:** Yapay Zekâ, YZ ve Güven, Görev Performansı, Yapay Zekâya Karşı Tutum, Yapay Zekâ ve Rahatsızlık, Yapay Zekâ ve Görev Performansı, Yapay Zekâyı Anlama

## ABSTRACT

### DO AI-BASED TOOLS INCREASE TASK PERFORMANCE: THE MEDIATING ROLE OF TRUST AND DISCOMFORT

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In the 1940s, McCulloch & Pitts laid the foundations of artificial intelligence with their model of the brain as a Boolean circuit. Views on artificial intelligence, which are said to have been established on this basis, are evolving, and changing every day. First coined in 1956, Artificial Intelligence has become a subject of conferences over the years, evolving into an industry and a science. Especially after AlphaGo, artificial intelligence applications that attract more attention from users have become a topic of curiosity for many people today, including employers, employees, and others (Russell, Norvig, 1995).

With the rapid development and change in technology, organizations are increasingly focusing on the widespread digitization. One of the most important topics within digitization today is applications based on artificial intelligence (AI). When looking at the current graphs shared within the study, it can be seen that there is an increasing trend towards AI topics.

In this context, organizations are entering into optimization processes in their current processes through AI-based applications, conducting various studies to reduce their expenses within the scope of cost optimization. While AI applications that manage routine and operative issues effectively and efficiently are preferred, not considering employees' thoughts on this matter and their compatibility with AI leads to various concerns.

In summary, while the study investigates whether using AI-based tools in an employee's professional life enhances task performance, it aims to reveal the effects of the level of knowledge about AI, attitude towards AI, trust in AI, and level of discomfort with AI on performance.

The data was collected through the participation of employees working on-site, remotely, and in a hybrid model in one of Turkey's leading corporate firms headquartered in Istanbul. 106 employees participated in the study, but due to inconsistencies in the responses, only 96 participants were included

in the analysis. The participants consisted of individuals actively using the Artificial Intelligence-based application of the relevant company and able to provide feedback on it. Reliability analysis, Exploratory Factor Analysis, and Model Test were used to analyze the data in investigating the hypotheses created, and the outputs were examined separately. The findings were elaborated and presented to the reader in detail to prepare a groundwork for future studies.

**Key Words:** Arfitificial Intelligence, Artificial Intelligence Trust, Task Performance, Attitudes Towards Artificial Intelligence, AI Discomfort, AI Task Performance, AI Understanding

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# 1. INTRODUCTION

## 1.1. STATEMENT OF THE PROBLEM

The increasing frequency of AI-powered applications in the realm of corporate firms aims to enhance employees' efficiency in utilizing time for routine processes. While research suggests that these applications offer theoretical time savings, contemporary concerns surrounding AI persist.

On one hand, employers are investing in various AI-powered applications to ensure that each employee utilizes their time more efficiently. On the other hand, questions regarding the relationship between AI and human labor are increasingly arising. At this juncture, it is crucial to consider how employees' lack of knowledge or misconceptions about AI, their attitudes toward AI, their trust in AI processes, and their discomfort with AI processes affect their task performance.

Observations indicate that it is quite likely for a company to encounter some or all of these problems in various stages of development processes. The root of all these problems lies in employees' apprehensions at various points in the business processes. Therefore, there is a need to analyze the impact of the widespread adoption of AI applications comprehensively and deeply on employees.

This study seeks to explore the relationship between AI-powered applications and employee performance, focusing on the mediating roles of knowledge, attitude, trust, and discomfort. It seeks to determine which aspects of this process require improvement and will guide future studies on the prioritization of these improvements.

## 1.2. OBJECTIVES OF THE STUDY

With investments increasing day by day, investments in the realm of AI surpassed $130 billion in 2023 (Statista). Examining the volume of these investments and the rate of increase in investments by year, the importance of research in artificial intelligence becomes evident.

This study will provide information to numerous companies worldwide, across all sectors, that manage various processes with artificial intelligence and incorporate digitization. Additionally, the model tested in the study aims to provide direct insights into employee performance.

In this research study, it is objected to address the below issues.

- How knowledgeable are employees in a corporate firm about artificial intelligence?
- What are the attitudes of employees toward artificial intelligence?

- How much trust do employees have in artificial intelligence?
- How do employees' attitudes toward artificial intelligence affect their task performance?

To address the aforementioned inquiries, a literature review will be conducted to clarify the possible characteristics of the effects of employees' knowledge, trust, discomfort level and attitude during their collaboration with artificial intelligence-based applications.

The objective of this study is to investigate the impact of AI-based applications on employee productivity and performance, while understanding the mediating role of trust and discomfort levels. Additionally, in this process, it will be crucial to investigate employees' level of knowledge and attitudes towards artificial intelligence, and to evaluate the results within this framework.

The focus of the research is to understand the adoption and use of artificial intelligence-based applications in the workplace and their effects on employee performance, and to demonstrate how these effects occur through specific factors. The findings of the study will provide valuable insights for businesses on how to use artificial intelligence-based applications more effectively.

## 1.3. RESEARCH TOPIC

The subject of this thesis is to determine whether artificial intelligence-based tools, which are increasingly used in human life, improve task performance, and to identify the mediating role of trust and discomfort in this process. Artificial intelligence applications are increasingly used in various fields and their impact on human life is increasing.

Recently, there have been and continue to be significant developments in applications involving artificial intelligence technologies. While some people demand the increase and development of the use of artificial intelligence-based applications in daily life, others think that the development of these applications may harm people's future. They also display a concerned attitude about this issue. The aim of this study is to reveal the thoughts of individuals who exhibit such anxious attitudes, to evaluate the differences, and to provide support and convenience for possible future research between human-artificial intelligence applications, whose interaction is increasing today. (Sindermann et al., 2020)

Human history is filled with changes and developments, yet humans, while being open to change, are also wary of it. The continuous advancement of technology attracts people to become knowledgeable about this progress and change, while also causing them to adopt a skeptical attitude. Especially after the pandemic period, terms like 'sustainability, digitalization, artificial intelligence,

productive artificial intelligence' have started to take up more space in our daily lives (Sachs et al., 2019).

As mentioned by Halal (2003), artificial intelligence (AI) has become a significant research area in almost all fields in the 21st century. These fields include, among others, engineering, science, education, medicine, business, accounting, finance, marketing, economics, stock market, and law.

The field of artificial intelligence has grown tremendously, to the extent that keeping up with the proliferation of studies has become a challenging task. In addition to its application in the aforementioned areas, research in artificial intelligence has branched out into many other fields, each emerging as separate areas of knowledge (Bell 2020).

On one hand, there are individuals who exhibit a warm attitude towards this subject, considering the current advantages and disadvantages of artificial intelligence products, and generally accepting the emergence of artificial intelligence products, believing that these developments will be beneficial for humans. On the other hand, there is a hesitant, even skeptical, and fearful segment regarding the rise of artificial intelligence products.

This situation extends to the point where prominent figures in the field, such as Stephen Hawking and Elon Musk, have openly expressed concerns that the progress in artificial intelligence research has the potential to end humanity (Cellan-Jones, 2014; Gibbs, 2014).

Comments and news about artificial intelligence completely shape employees' thoughts on artificial intelligence. The starting point of the thesis is exactly this point, aiming to examine whether the use of artificial intelligence products by an employee in their work life improves task performance (Stefanuk & Zhozhikashvili, 2002; Tay & Ho, 1992).

Of course, in conducting this research, the factors influencing an individual's perception, thoughts, and attitudes towards artificial intelligence, as summarized above, have been targeted to investigate the positive/negative changes in an individual's performance journey.

In summary, the thesis aims to investigate whether the use of artificial intelligence-based tools by an employee in their work life improves task performance, while also aiming to reveal the effects of knowledge about artificial intelligence, attitude towards artificial intelligence, trust in artificial intelligence, and discomfort with artificial intelligence on performance.

Thus, by presenting the data in this thesis as a cycle that reveals the impact of artificial intelligence products on employee performance, employers aiming to increase productivity by popularizing artificial intelligence products in their work environments today and in the future will benefit.

## 1.4. MOTIVATION OF THE STUDY

The study emphasizes the vital importance of artificial intelligence applications in accelerating processes and increasing efficiency for the survival and sustainable success of companies operating in the digitalized world of business. Despite its significant impact on employee performance and enabling employees to use their time efficiently, there are concerns about the use of artificial intelligence applications. These observations indicate that companies need to evaluate the behavior of employees from various perspectives in the steps they take towards digitalization.

An analysis conducted in one of Turkey's leading corporate companies clearly demonstrates this. Furthermore, the expectations of comprehensive process analysis through research by company executives in one of Turkey's well-established companies in the digital and technology field have also been a separate motivation for the study.

## 1.5. LIMITATIONS OF THE STUDY

In this thesis, it is possible to mention six separate limitations encountered. Firstly, speaking of sample limitations, the research was conducted in one of Turkey's leading corporate firms. A department using an artificial intelligence-based application within the company was selected as the sample.

Therefore, the fact that the participants consist of employees from a single company and essentially from the same department emphasizes the need for the study to be conducted in a broader context.

Another challenge encountered in this study is that employees using artificial intelligence-based applications may have been hesitant about the relationship between the confidentiality of the research and workplace loyalty, hence the number of participants in the survey remained limited.

Additionally, there were some difficulties in finding volunteers for the research and during the data collection process. Even though the research was conducted in an online survey environment, there were individuals who refused to share information about their thoughts and lifestyles due to concerns about being judged, both from a professional and personal perspective.

Another limitation is that the existing company strategy of the corporate firm where the study was conducted determined the current position of artificial intelligence-based applications. Therefore, the results of the research were also influenced by external factors.

Also, the time limitations can be seen as another limitation. The fact that the study was conducted within a certain time frame means that the results may only be specific to that time. This makes it difficult to evaluate the long-term effects or changes of the results.

Lastly, one of the most important issues is the rapid change in the concept and use of artificial intelligence, which may limit the validity of the study results over time. The manner in which participants interpret and perceive the questions related to artificial intelligence in the survey is also included in these limitations.

## 1.6. SCOPE OF THE STUDY

In the first part of the study, general information about the research, the problem definition that led to the research, the aims of the research, the main topics that the research will address, the sources of motivation for the research, and the main constraints and limitations of the study are generally discussed.

In the second part of the study, a literature review on the subjects of the research is conducted. This literature review starts with topics related to artificial intelligence and focuses on the subjects targeted by the research, such as understanding artificial intelligence, trust in artificial intelligence, attitudes, and levels of discomfort. Additionally, the results of the literature review on artificial intelligence task performance topics are also discussed.

In the third part of the study, within the methodology section, the research aim and the sample including the relevant team of the corporate firm using the artificial intelligence-based applications, which is the subject of the research, are mentioned. Furthermore, the model designed following the literature review and the survey created along with its sources are discussed.

In the fourth part of the research, findings and demographic structure are mentioned, followed by various tests and analyses. The hypotheses developed are explained in detail, and after the analyses, the results of the hypotheses are shared. Additionally, one of the most important parts of the research, the mediation analysis, and its results, are discussed in this section.

The next section includes the discussion and evaluation of the research results.

## 1.7. SYMBOLS AND ABBREVIATIONS

| | |
|---|---|
| **AI** | Artificial Intelligence |
| **AI_ATT** | Artificial Intelligence Attitude |
| **AI_DIS** | Artificial Intelligence Discomfort |
| **AI_TPERF** | Artificial Intelligence Task Performance |
| **AI_TRU** | Artificial Intelligence Trust |
| **AI_UND** | Artificial Intelligence Understanding |
| **D.V.** | Dependent Variable |
| **EFA** | Explaratory Factor Analysis |
| **IoT** | Internet of Things |
| **I.V.** | Independent Variable |
| **KMO** | Kaiser-Meyer-Olkin |
| **MIN.** | Minimum |
| **MAX.** | Maximum |
| **YZ** | Yapay Zekâ |

# 2. LITERATURE REVIEW

## 2.1. ARTIFICIAL INTELLIGENCE

When we look at human history, we see that humanity is in a constant state of change and development. The concepts of development and change directly evoke technology, and even in today's world, concepts such as digitalization and artificial intelligence.

In today's world, digitalization is fundamentally changing the world we live in. Its increasing impact on society affects humanity at both the national and international levels. (Vial 2019)

At the national level, its impact encompasses the process of digitalization and accompanying automation, describing the transition from low-skilled to high-skilled professions and the likely effects of this transition (Balsmeier 2019).

At the international level, it includes various issues such as energy, which is actually a result of all current digitalization processes, and the transition to renewable energy. Today, digitalization is changing the balances between countries, and in the future, it is thought to affect even more diverse issues (Saarikko 2020).

The trend of increasing AI investment is expected to continue after a significant surge in 2021. Investments in AI nearly doubled between 2020 and 2021, and they are anticipated to demonstrate a significantly increased upward trajectory starting from 2022.

Investment in AI is expected to continue its upward trend after experiencing a significant spike in 2021. The levels of investment nearly doubled between 2020 and 2021, and a noticeable increase in

the upward trend is anticipated from 2022 onwards.

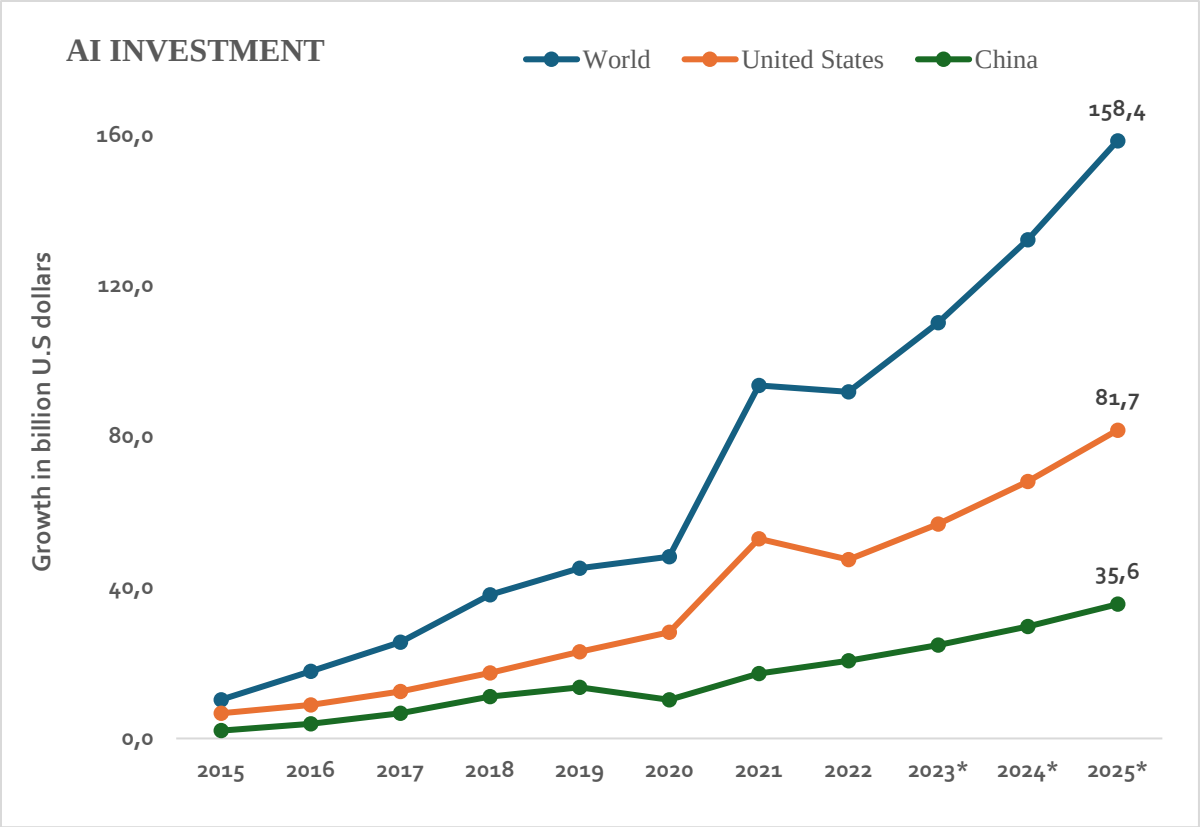



**Figure 2.1.** The global growth trajectory of AI investment from 2015 to 2025. (in billion U.S. dollars) (Statista, Goldman 2023)

As can be seen in the graph, investments in artificial intelligence worldwide were $10 billion in 2015, but today they have exceeded $100 billion and are expected to exceed $150 billion by 2025. The increasing investments clearly indicate the growing importance of research in artificial intelligence. (Statista, Goldman 2023)

Following a significant spike in 2021, investment in AI is expected to continue its growth trajectory. Between 2020 and 2021, investment levels in AI nearly doubled, with a noticeable increase in the upward trend anticipated from 2022 onwards. (Statista, Goldman 2023)

The various examples mentioned above remind us of how the father of AI, John McCarthy, defined artificial intelligence in the 1990s as "the science and engineering of making intelligent machines, especially intelligent computer programs," highlighting that AI is indeed progressing along the path envisioned by McCarthy.

In broad terms, "AI" refers to the capability of machines to imitate human cognitive functions, including learning and problem-solving (Moore 2020).

Artificial intelligence is increasingly utilized in electronic markets, which has triggered its widespread adoption across transforming industrial boundaries and organizations in the global economy

(Adam et al., 2020). This is why artificial intelligence is seen as a fundamental element in creating strategy in the business environment, is seen as one of the most fundamental elements of organizational decision-making in institutions, and plays an important role in creating additional value in the work done (Dwivedi et al., 2019). AI is a pervasive concept that encompasses various subfields and dimensions, including human-like thinking, rational thinking, human-like behavior, and rational behavior (Russell & Norvig, 2016). However, it lacks a consistent definition (Duan et al., 2019). Despite its association with human intelligence, society grapples with how machines can achieve such intelligent behavior, leading to a classification into narrow AI, general AI, and superintelligence (Batin & Turchin, 2017).

Narrow AI involves self-learning perspectives that excel beyond people in specific, limited tasks. General AI is described as self-learning similar to human intelligence. Superintelligence is theoretically considered to enhance human capabilities in different views.

The majority of systems used in institutions and business environments are classified as narrow Artificial Intelligence because they focus on specific issues in the work done(Batin & Turchin, 2017). As experienced in applications used in different sectors and categories, Artificial Intelligence-based applications can adapt people's habits to their working systems and working methods (Bednar & Welch, 2020, Barredo Arrieta et al., 2020).

Artificial intelligence (AI) based solutions are being used in many sectors today, with their usage increasing rapidly. As mentioned, one of the sectors closely intertwined with AI is the energy sector, where Artificial Intelligence is utilized in diverse fields. Furthermore, its usage in this sector is increasing day by day.

Artificial intelligence (AI) based solutions are being used in many sectors today, with their usage increasing rapidly (Ahmad et. al, 2022). As stated, artificial intelligence is intertwined with many sectors. However, the adventure of artificial intelligence continues more closely in some sectors. One of these sectors is the energy sector, where artificial intelligence is used in various areas. Moreover, its use in this sector is increasing day by day.

When we look at smart manufacturing systems as another area, they generally focus on innovative solutions to reduce costs while increasing the quality and sustainability of production activities.

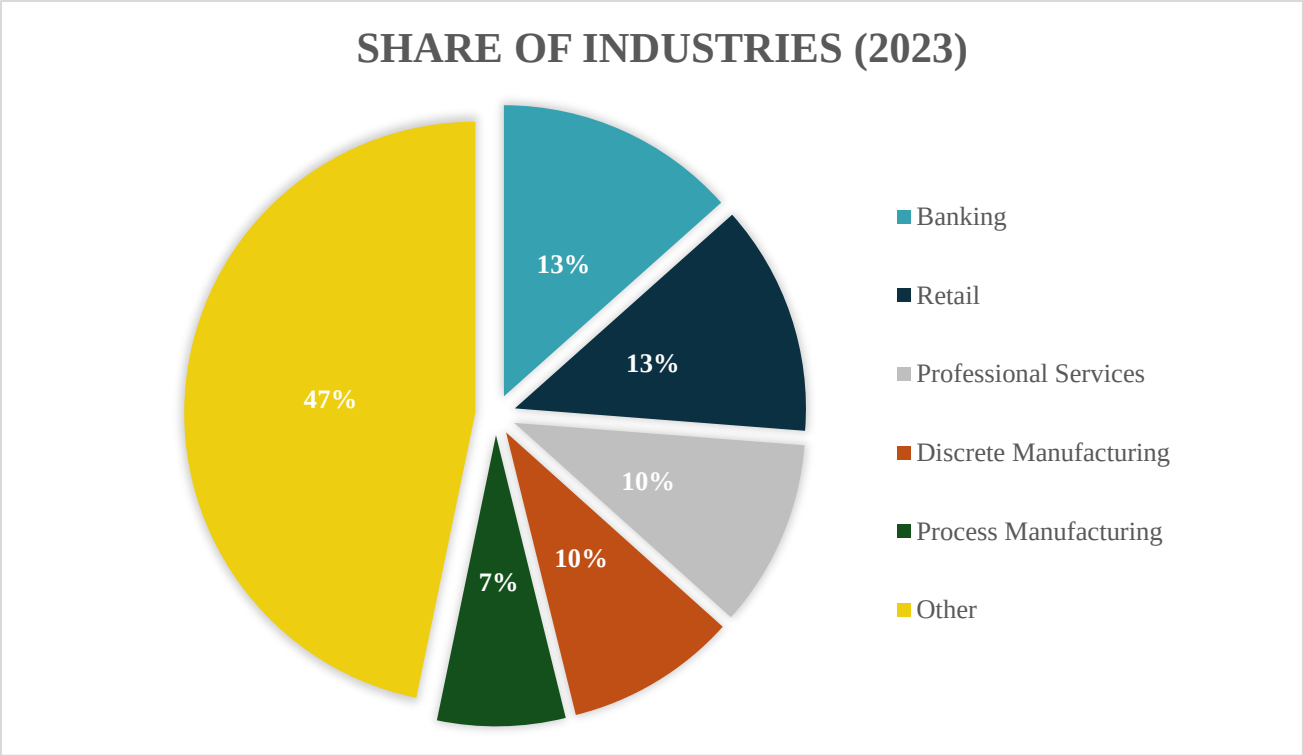



**Figure 2.2.** Projected distribution of global expenditure on AI-focused systems across various industries in 2023 (Statista, IDC 2023).

Additionally, when we look at investments by sector, we see that the finance and retail sectors are leading. Besides, there are significant investments in the service and manufacturing sectors. However, in general, it is possible to say that investments in AI are increasing and appearing in different sectors.

In 2023, there was significant disparity in artificial intelligence (AI) expenditure among industries, with the banking and retail sectors emerging as the top investors in AI. The banking sector accounted for 13.4 percent of total investments, closely followed by the retail sector at 12.8 percent. Global spending on AI reached an estimated 154 billion U.S. dollars in 2023.

In modern times, artificial intelligence is employed by businesses to accomplish a wide array of tasks. These include identifying suitable candidates for positions, offering financial product recommendations to customers, carrying out financial transactions, underwriting, managing complex logistics processes, diagnosing patients, suggesting therapies, forecasting technological advancements, and tracking criminal activities (Nica et. al., 2019).

The swift implementeation of Artificial Intelligence businesses today can be credited to several primary factors. These factors include technological advancements in the past two decades that support Artificial Intelligence techniques (like long-term memory units, recurrent neural networks, and convolutional neural networks), businesses' access to these technologies through open-source licenses

(Amazon's Alexa virtual assistant), the growing efficiency of information technology in capturing and storing job-related data within organizations, the reduction in costs of computer hardware and AI-compatible chip designs, and the proliferation of cloud-based services that make AI accessible to businesses of various sizes. (Zemke et. al. 2000)

In this context, AI-focused technologies supported by Industry 4.0 Basic Enablement Technologies, including the IoT, sophisticated embedded systems, cloud computing, big data analytics, cognitive systems, as well as virtual and augmented reality, are mature and being actively utilized (Gupta, 2017).

The number of research studies on AI-based applications has been increasing over the last 20 years across various categories and fields of study and continues to do so. Some examples of these fields include health, finance, sales and marketing, economics, and more (Halal, 2003; Masnikosa, 1998).

As is well known, the foundation of AI-based applications lies in machine learning. The use of these applications in various institutions, companies, and governments has increased, significantly broadening their scope and impact on society (Oke 2008).

AI-based applications, in addition to the aforementioned processes, also significantly impact one of the most crucial issues of our time: sustainability. Therefore, it is beneficial to evaluate AI's influence in areas such as efficient use of energy resources, waste management of recyclable products, and similar topics. For this reason, there is a trend towards integrating AI-based applications into green transformation and sustainability processes in environmental matters (Carvalho et al., 2019).

As PricewaterhouseCoopers' Sustainability Services leader Hendrik Fink stated in March 2019, "If we integrate artificial intelligence correctly, we can achieve a revolution in sustainability. Artificial intelligence will be the driving force behind the fourth industrial revolution" (Majorel Deutschland GmbH, 2020).

Considering its contributions to various areas, it becomes clear why subfields of AI, such as machine learning and data mining, have become critical topics for many companies today. (Metaxiotis et al., 2003).

The development of AI in each category and sector is critical. Therefore, keeping up with current technology, adapting to the pace of change, and staying competitive are fundamental focuses for companies today (Halal 2003).

Another definition of artificial intelligence involves the collection, analysis, and interpretation of information from the external environment. This definition includes understanding the information in the data, learning, and using this learning flexibly and adaptively to meet defined goals and tasks. In the broadest sense, it can be defined as the intelligence exhibited by machines (Haenlein and Kaplan, 2019).

Artificial intelligence, which is increasingly emphasized every day, refers to artificial systems expected to perform cognitive functions or autonomous behaviors specific to humans. For instance, it includes software algorithms and techniques that provide computers and machines to effectively emulate human perception and decision-making processes (Alanoğlu & Karabatak, 2020; Kış, 2019). Artificial intelligence is present in every aspect of life such as health, security, education, food, etc. (Popenici and Kerr, 2017).

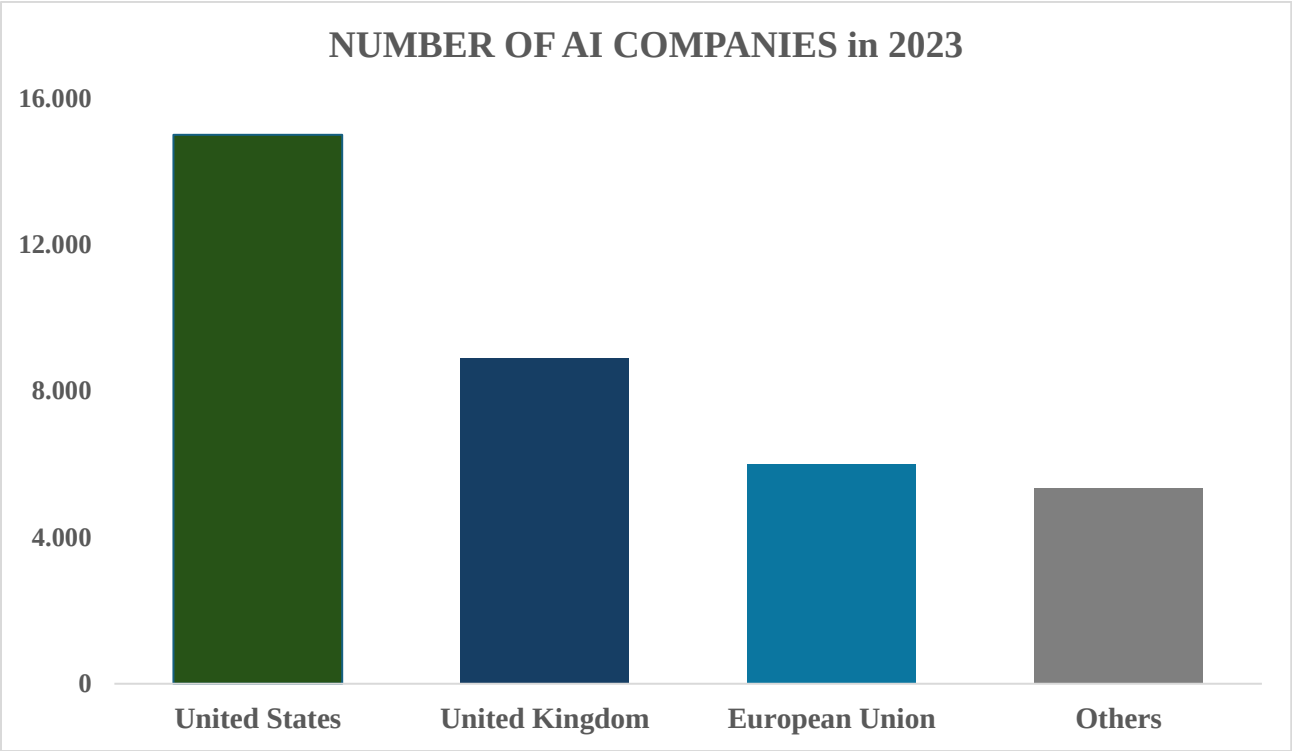



**Figure 2.3.** The count of artificial intelligence (AI) companies in leading global economies in 2023 (Statista, Global AI Ecosystem 2023).

As seen in the figure, there are approximately 15,000 artificial intelligence companies in the United States alone. According to a study conducted in selected countries (Canada, USA, Europe Countries, Israel, United Kingdom, European Union) in 2023, the number of artificial intelligence companies has reached a significant level.

In 2023, the United States led major Western economies with the highest number of AI companies, boasting approximately 15,000 firms in the field. The EU lagged significantly behind, with only 6,000 AI companies. The UK stood out with nearly 9,000 AI companies, a notable accomplishment considering the immense economic size of its competitors.

As mentioned in various sources, investments in artificial intelligence have rapidly increased in the 21st century and continue to do so. Additionally, we see a growing interest among companies in artificial intelligence-based applications.

The concept of Artificial Intelligence (AI) emerged in the 1960s, and its current wide range of applications was not expected at that time. As various examples illustrate, today, AI-based solutions can be found in almost every aspect of human life, including home (smart home), city (smart city), work, and education. Moreover, AI is seen in various applications in communication, transportation, healthcare services, and entertainment (Sethumadhavan, 2019).

Artificial Intelligence (AI) is increasingly impacting individuals' lives and the functioning of societies, leading to the emergence of more advanced technologies and solutions (Makridakis, 2017).

Artificial intelligence is increasingly gaining traction in the corporate world with a wide range of applications, from simple 'chatbots' used in customer service to more complex analytical solutions that involve deep research (Lee & Tsai, 2020).

In AI-based applications, it is possible to discuss solutions of varying capacity and scope. For instance, one can refer to simple chatbots used in customer service, as well as AI applications that handle complex analytical solutions based on deep learning (Allam & Dhunny, 2019).

The AI market is set for substantial growth over the next decade, with projections indicating an increase from 200 billion U.S. dollars in 2023 to nearly two trillion U.S. dollars by 2030. This extensive market encompasses a diverse range of industries, influencing supply chains, marketing, research, analysis, and many other sectors. Key trends within the AI domain include chatbots, AI-generated art, mobile applications, and natural language processing.

## 2.2. ARTIFICIAL INTELLIGENCE UNDERSTANDING

Artificial Intelligence (AI) represents a paradigm shift that is shaping both scientific progress and industrial evolution today. However, due to the level of domain knowledge required to truly appreciate the technical capabilities of AI, what it is and what it can do are often misunderstood (Corea, 2019, pp. 15-20).

The ongoing developments are impacting the general user base in various ways, leading to the creation of theories about doomsday scenarios. Particularly, there have been significant investments and capital movements in the field of artificial intelligence recently. However, executives are rushing to introduce new software that can boost their productivity, salaries, and bonuses, but they have not clearly articulated the factors that increase competition (Corea, 2019, p. 31-38).

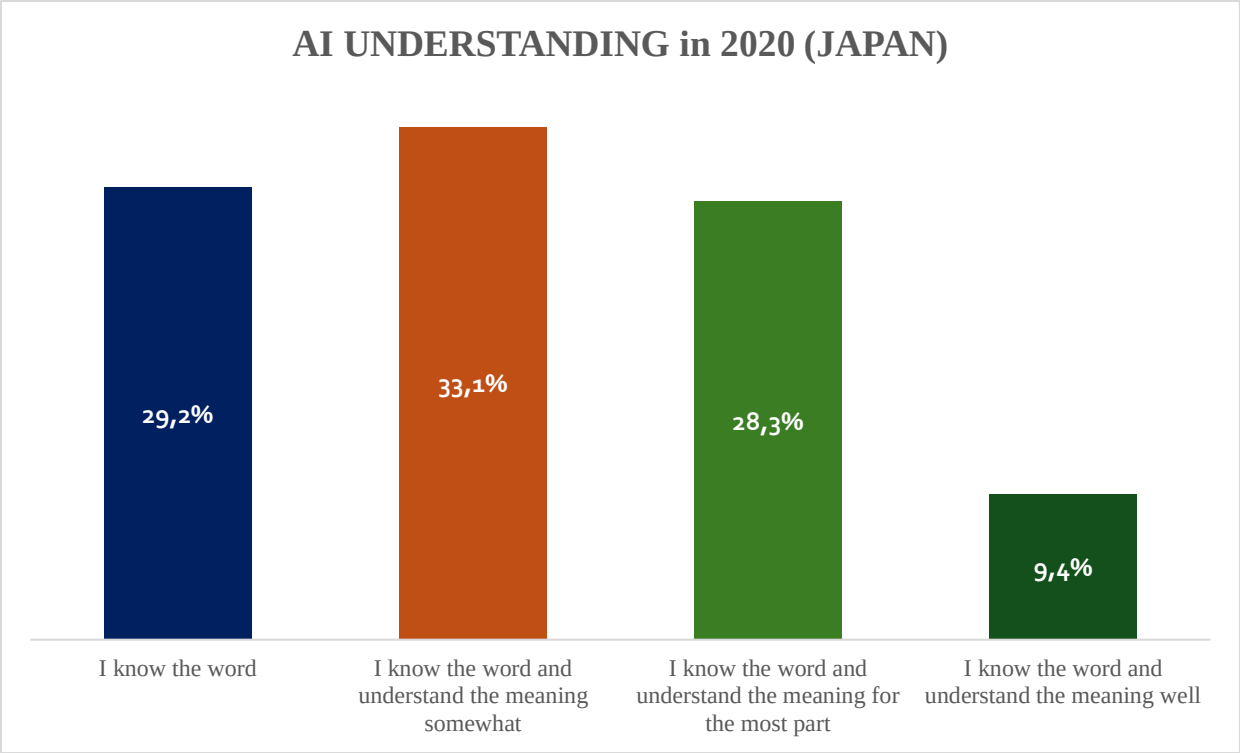



**Figure 2.4.** The level of awareness regarding artificial intelligence (AI) in Japan as of December 2020 (Statista, MS&AD InterRisk Research & Consulting 2021).

According to the results of a study conducted in Japan in 2020, when looking at the outputs, more than 60% of the participants stated that they knew the literal meaning of artificial intelligence, but they could not fully express its general usage meaning, purpose and understanding. This indicates that there is still a significant gap in artificial intelligence education and communication.

In a survey conducted in December 2020, over nine percent of respondents in Japan claimed to be knowledgeable about artificial intelligence (AI) and have a solid understanding of its meaning. Furthermore, more than 28 percent stated that they are familiar with the term and understand its meaning to a great extent.

To further elaborate on artificial intelligence, let's consider its various definitions. According to Bostrom (2014), artificial intelligence can be perceived in three distinct ways today: it can serve as an "Oracle," accurately answering all your questions; as a "Genie," capable of executing any command given to it; or as a "Sovereign," acting autonomously to achieve a specific long-term objective. However, defining artificial intelligence merely by its capabilities is limiting; a broader definition is more fitting.

Artificial intelligence can be described as a system that has the capability to learn how to learn. In other words, it consists of a set of instructions enabling computers to develop their own algorithms without explicit programming (Bostrom, 2014).

## 2.3. ARTIFICIAL INTELLIGENCE TRUST

Studies by Hertel et al. (2017) and Mitchell & Brynjolfsson (2017) point towards the potential for computer technology to disrupt almost every professional field in the near future. As technology continuously advances and chip performance continues to accelerate (Russell, 2020), the amount of existing data is also rapidly increasing.

Particularly, smart and interconnected products are generating vast amounts of new data, reshaping all business processes, and leading to a structure known as the 'Internet of Things' (Porter & Heppelmann, 2014).

Fueled by advancements in computer technology, information systems are increasingly adept at gathering, structuring, analyzing, and presenting task-specific data. These modern systems transcend simple data processing by offering decision-making aids based on pre-defined inputs and established procedures. Furthermore, machine learning algorithms delve into existing information to identify patterns and autonomously generate potential solutions for specific tasks (Avolio et al., 2014).

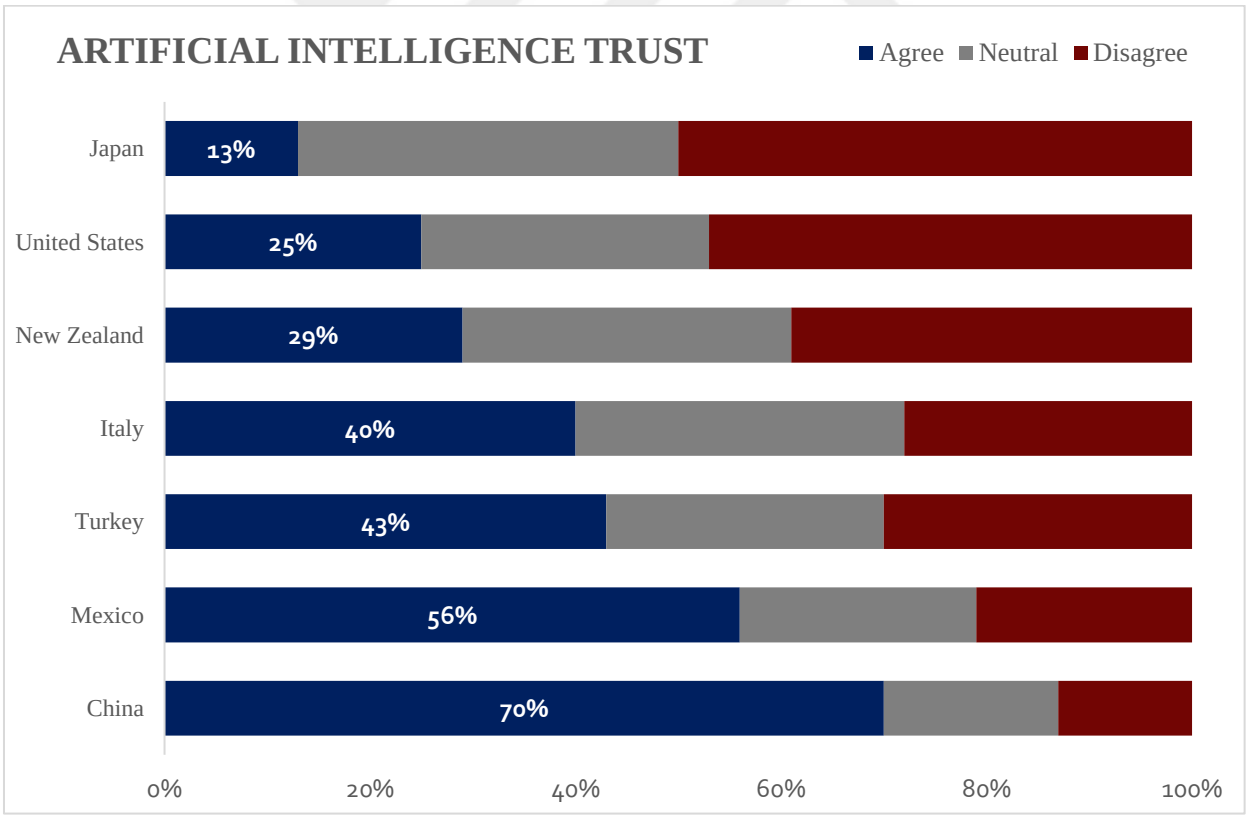



**Figure 2.5.** Percentage of individuals who expressed trust in artificial intelligence in 2018, categorized by country (Statista, Ipsos 2018).

When examining the results of studies on trust in artificial intelligence conducted in different countries, it is evident that there is significant hesitation regarding trust in AI globally, due to various reasons.

The relevant graph shows the percentages of people from different countries who expressed trust in artificial intelligence. According to the results of the study conducted by IPSOS, 70% of participants in China reported trusting AI, whereas only 25% of participants in the United States expressed the same level of trust.

Information technologies are fundamentally engineered to empower workplace users. This empowerment comes in various forms, such as reducing communication burdens (both in terms of cost and effort) and freeing up employees' mental capacity for more strategic tasks (Aral, Brynjolfsson, & Van Alstyne, 2012).

As in every field, the sustainable continuation of development in information technology depends on the trust of application users (Silic, Barlow, & Back, 2018).

Trust can be described as the readiness to depend on and be open to an information system in environments that are uncertain and risky (Gefen et. al., 2008).

On the other hand, it is important to acknowledge that the sense of trust is subjective. It is influenced by various factors, depends on the individual, is affected by the prevailing conditions, and ultimately motivates changes in employee behavior. While trust in a work environment depends on many factors, it is particularly closely related to productivity, the presence of risks, and similar aspects.

When examining the relationship between trust and job performance, it is found that this relationship plays a role similar to the one between performance and job satisfaction. In fact, a comparison would suggest that the similarity between these relationships is at most this significant (Colquitt, Scott, and LePine, 2007). In virtual environments, trust encourages various values. For example, it promotes efforts to share acquired knowledge within the team and to enhance overall performance (Breuer, Huffmeier, and Hertel, 2016).

Moreover, Hoff and Bashir (2015) noted that users' trust is key to enhancing the safety and productivity of automated systems.

The increasing use of artificial intelligence (AI) has underscored the importance of trust in AI systems. Trust is a complex and multifaceted concept (McEvily, Tortoriello 2011), making it difficult to define in a clear and universally accepted manner.

Trust, considered the cornerstone of social relationships, is a subject of study in various disciplines within the social sciences, such as psychology, sociology, political science, economics, and management. It also holds significance for humanists, particularly philosophers and ethicists (Kramer, Tyler 1996).

While trust can be interpreted and defined in multiple ways, it is commonly viewed as a belief or, at times, a certainty held by the trustor regarding the future actions or circumstances involving the trustee (Mayer et al., 1995).

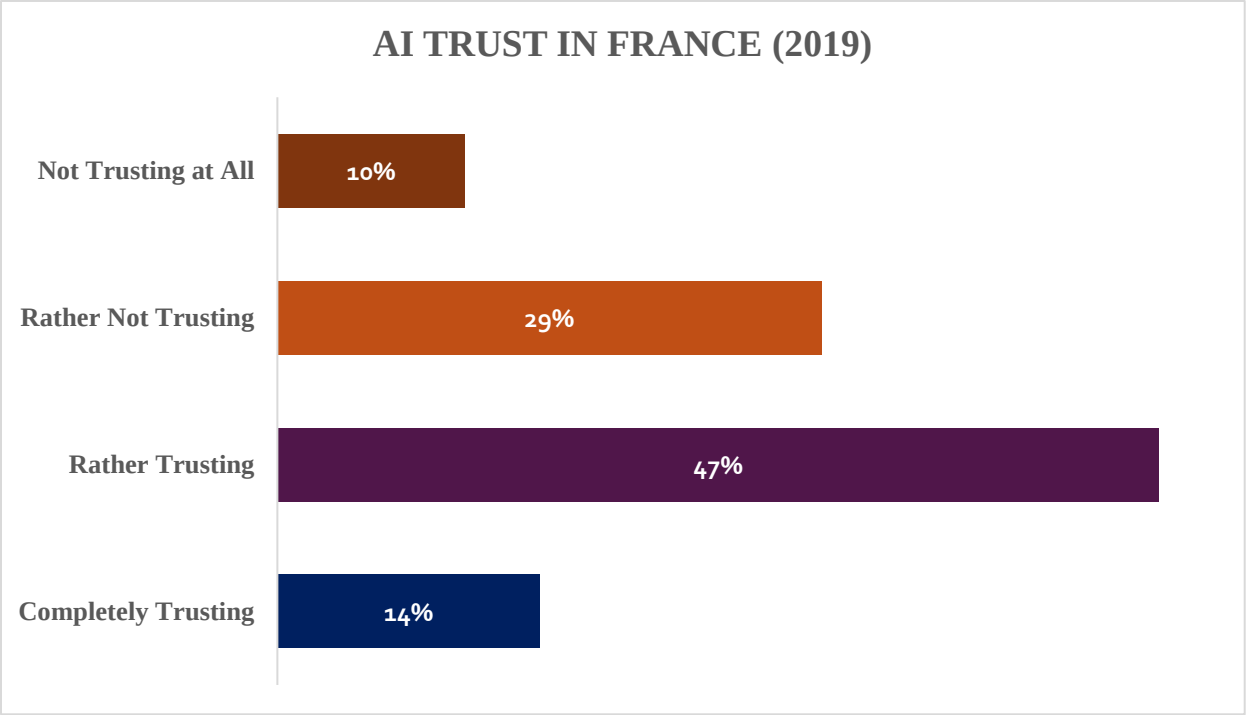



**Figure 2.6.** Percentage of individuals who trust or do not trust artificial intelligence in France in 2019 (Statista, Harris Interactive 2019).

'The question: Do you trust artificial intelligence?'

Similar to previous research, a study conducted in France in 2019 revealed that 61% of participants trust artificial intelligence.

The figure above illustrates the thoughts of French individuals on artificial intelligence and whether they trust it or not. A general assessment of the study highlights that approximately 30% of the participants view AI with concern.

Trust value is generally considered a subjective measure and is regarded as a variable specific to individuals. In this context, when discussing the sense of trust today, it should be understood not only as interpersonal trust but also as trust between objects and companies (Siau and Wang, 2018).

At this point, the issue of trust comes into play, especially in the context of AI-based applications that are becoming widespread in institutions and companies today.

It is an undeniable fact that the presence of AI-based applications in the corporate world is increasing every day. AI offers many advantages to people, which in turn leads to a rise in the number of entrepreneurs and various companies looking to increase the use of AI-based applications. They are

aware that these developments can provide them with significant cost savings, optimization, and other benefits (Nickel 2009).

The increasing use of AI in companies and firms is frequently discussed, but when looking at the positive effects of AI usage, cost optimization efforts stand out. For instance, increasing the use of AI-based applications can lead to cost reductions, decreased employment, improved efficiency in various processes, and the identification of negative processes, thereby providing significant advantages (Hough et al., 2010).

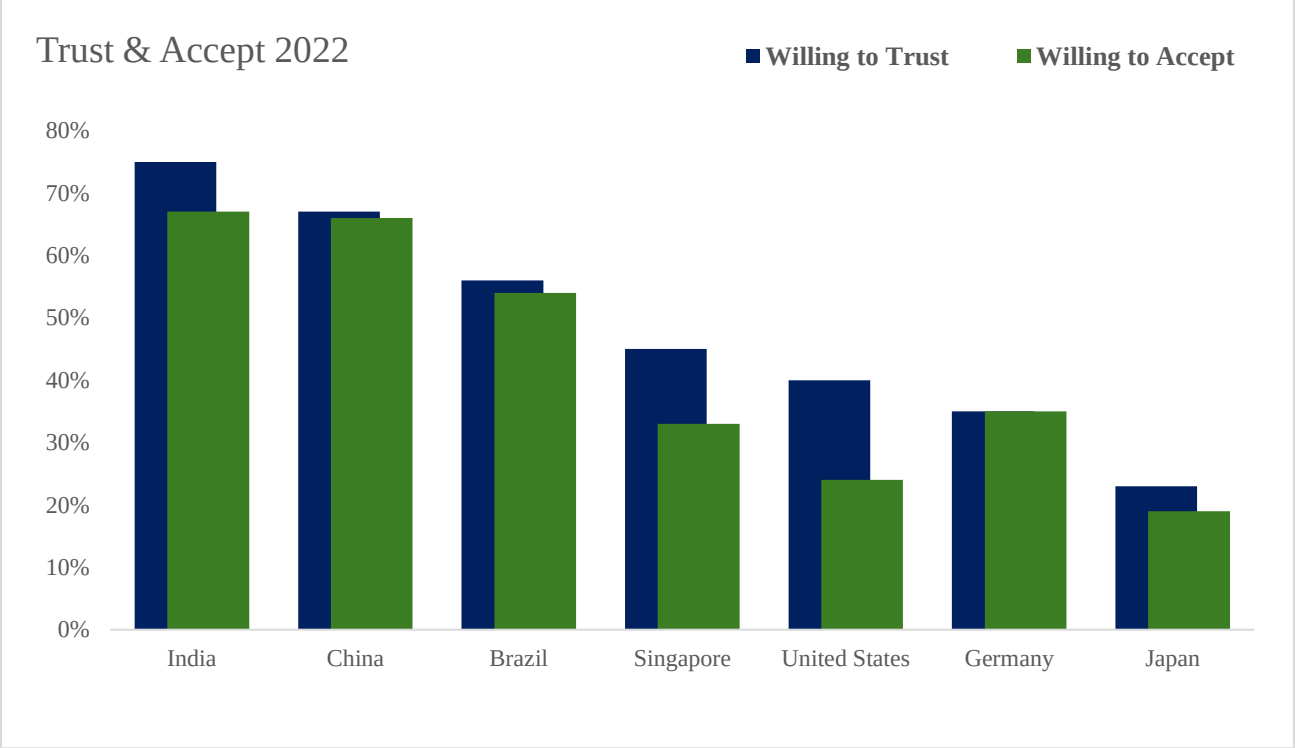



**Figure 2.7.** Willingness to trust and accept AI systems in selected countries 2022 (Statista, UQ 2023)

Another study examining the preferences between trusting and accepting artificial intelligence in different countries found that, apart from Germany, participants from all other countries focused on the value of trust.

The study reveals that Western countries are particularly hesitant to trust and adopt AI-based applications, ranking lower than other countries in this regard. They appear to be more sensitive about AI applications used in personal areas. The primary reasons for this hesitancy are believed to be the use of AI-based applications instead of human labor in various job sectors and concerns about sharing personal information. On the other hand, participants in other countries seem to be more willing to trust and accept these applications.

The advantage that artificial intelligence-based applications provide to a company is entirely dependent on the perceptions of the employees working within the institution. For instance, tasks that were previously completed by multiple employees, which were complex or dangerous, are now observed to be accomplished much more easily through AI-based applications. Consequently, it has been noted that employees can access information quickly and easily, resulting in significant time savings (Davenport, Ronanki 2018).

While information technologies offer undeniable benefits, the adoption of AI solutions can introduce drawbacks at both the company and individual level. Businesses implementing AI may face challenges such as a lack of internal technological infrastructure to support these solutions or the potential loss of competitive edge if competitors implement AI faster (Cheatham et al., 2019).

To explore how employees perceive and trust AI in the workplace, we leverage existing definitions of trust in technology. Given the advanced nature of AI compared to other technologies (Ryczkowski, 2020), we posit that understanding trust in technology provides a foundation for understanding trust in AI.

When examining the scientific definition of trust in technology, various factors emerge. These include meeting general needs, ease of use, predictability of outcomes, and the reliability of suppliers (McKnight et al., 2011). Considering trust in artificial intelligence, one of the main focuses of modern technology, this trust refers to the belief that the technology will provide positive results in a functional, useful, and reliable manner (Siau and Wang, 2018).

Functionality in technology refers to its ability to perform expected tasks or the expectation that it can do so. Helpfulness in technology, or its benevolence, indicates that the technology can fulfill its built-in assistive functions. Reliability refers to the expectation that a particular technology will operate predictably and consistently.

Trust in technology hinges on an individual's belief in a tool or system's ability to deliver on its intended purpose and advertised capabilities (accuracy, effectiveness, etc.).

Critically, for employees in our study, trust in technology within the company, and consequently in AI, isn't built in isolation. Lee and See (2004) emphasize that this trust emerges from the intricate web of contexts that shape a company's environment.

To comprehensively assess employees' trust in AI within their company, we delve into three key contextual factors: (1) their general trust in technology, (2) the nature of the company's support structures that foster trust in technology (often referred to as intra-organizational trust), and (3) the specific characteristics of the employees themselves, including their individual technological competency and trust in using AI solutions (Aaronson & Zable, 2023).

Artificial intelligence (AI) is widely used in many areas of life today and plays an important role in the business world as well. However, trust in AI varies depending on factors such as the usefulness, reliability, and functionality of the technology. Employees' trust in AI is generally shaped by their overall trust in technology, the nature of institutional support, and the characteristics of the employees.

In another article by Łapińska et al. (2021), the focus was on employees' trust in artificial intelligence within companies. The article, primarily centered on trust in artificial intelligence, explores subtopics such as trust in technology, trust within the company, and trust based on individual competence.

The literature review highlights that artificial intelligence and AI-based applications are increasingly prevalent in the corporate world. Moreover, as employees' interactions with advanced technologies, including AI applications, become more common, it is emphasized that companies should concentrate on factors that build trust in artificial intelligence.

## 2.4. ARTIFICIAL INTELLIGENCE ATTITUDE

Worldwide, AI-powered machines are starting to replace human labor in certain positions in almost all sectors. This reality is causing a negative perception of AI to develop among employees. Perceived job insecurity negatively affects the mental health of employees, leading to depression and organizational cynicism (Brougham and Haar, 2018).

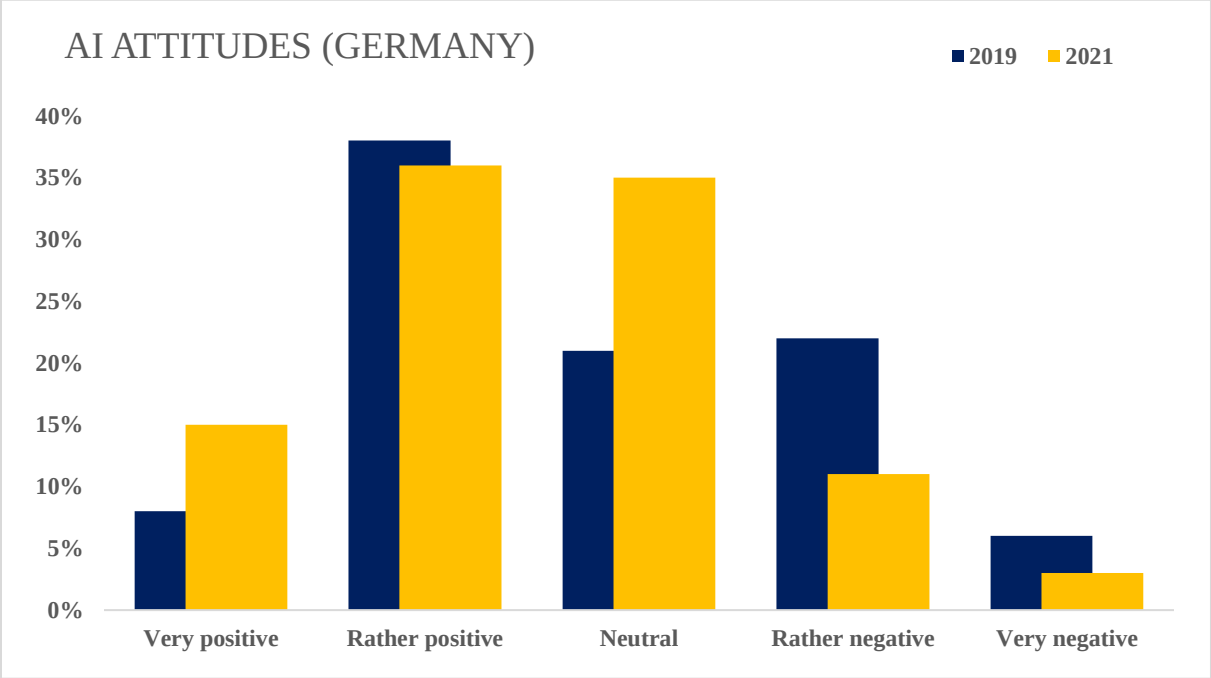



**Figure 2.8.** Views on AI among the public in Germany in 2021. (Statista, TÜV-Verband 2021).

'The question: How do you feel when you think about AI?'

The study conducted in Germany also revealed participants' attitudes towards artificial intelligence. Generally, a significant portion of the participants still do not hold a positive attitude towards artificial intelligence.

In 2021, approximately 36 percent of individuals in Germany held a rather positive view of AI. This represents a 2% decrease compared to 2019, while the share of individuals with a more positive attitude and perception towards AI increased by 7%. Only 3% of the participants in the study hold negative views about AI.

The gradual replacement of employees in organizations by artificial intelligence can negatively affect their sense of workplace belonging and loyalty. Employees who feel that their areas of expertise

and professions are under threat from technology and AI may experience stress, anxiety, sadness, and disappointment (Gabriel and Pessl, 2016).

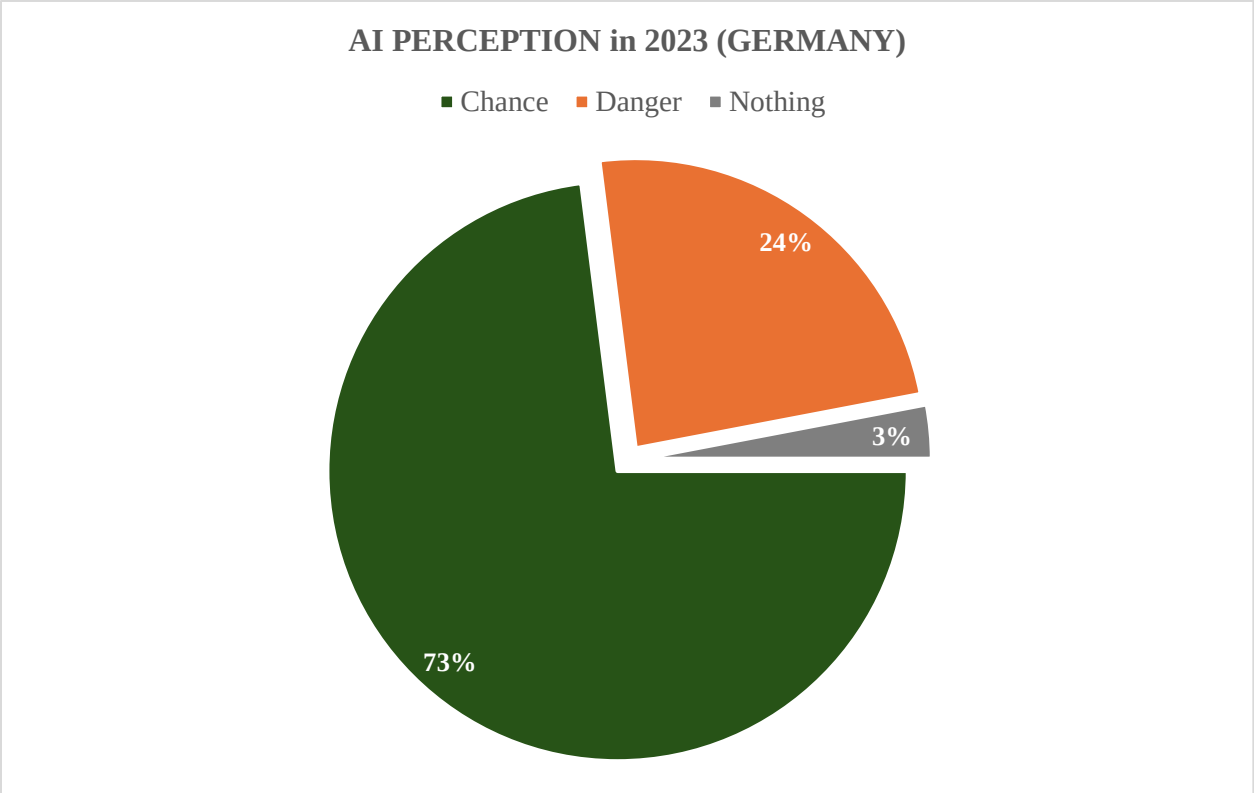



**Figure 2.9.** Perception of artificial intelligence in Germany 2023 (Statista, Bitkom 2023)
'The question: Do you see artificial intelligence as an opportunity or a danger?'

In 2023, approximately 73 percent of individuals in Germany viewed artificial intelligence as an opportunity rather than a danger or threat. Around 24 percent of respondents perceived AI as something dangerous.

Employees' positive and negative attitudes towards technology significantly influence their decisions to accept technology, which in turn affects innovation performance in organizations. Employees' negative attitudes towards technology use in organizations are based on various reasons.

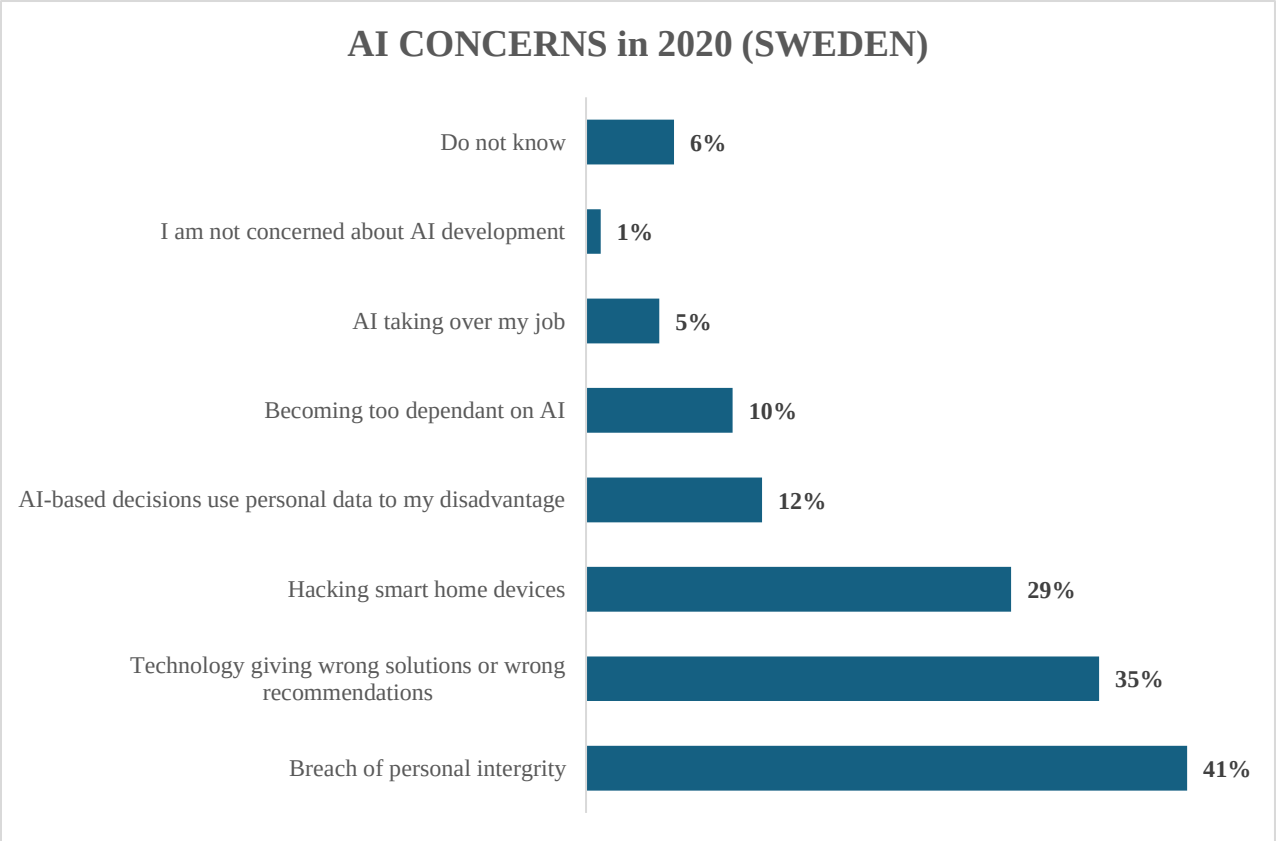



**Figure 2.10.** Key concerns about AI development. (Statista, Insight Intelligence 2020)

'The question: What are you most concerned about within the development of AI?'

The statistic presents the findings of a 2020 survey regarding the primary concerns of Swedish individuals regarding the advancement of AI. The top concern, as reported by 41 percent of respondents, was the potential for AI to be utilized in personal data breaches. Conversely, the least concerning issue, according to five percent of participants, was AI replacing human jobs.

One of these is the overall level of acceptance of new technologies by employees. Employees who follow and use new technologies tend to have a higher level of acceptance of new technology use in the organization. Additionally, factors such as not imposing technology use on employees, employees voluntarily using technology, and their experiences with technology use also affect their level of acceptance of technology (Lichtenthaler, 2020)

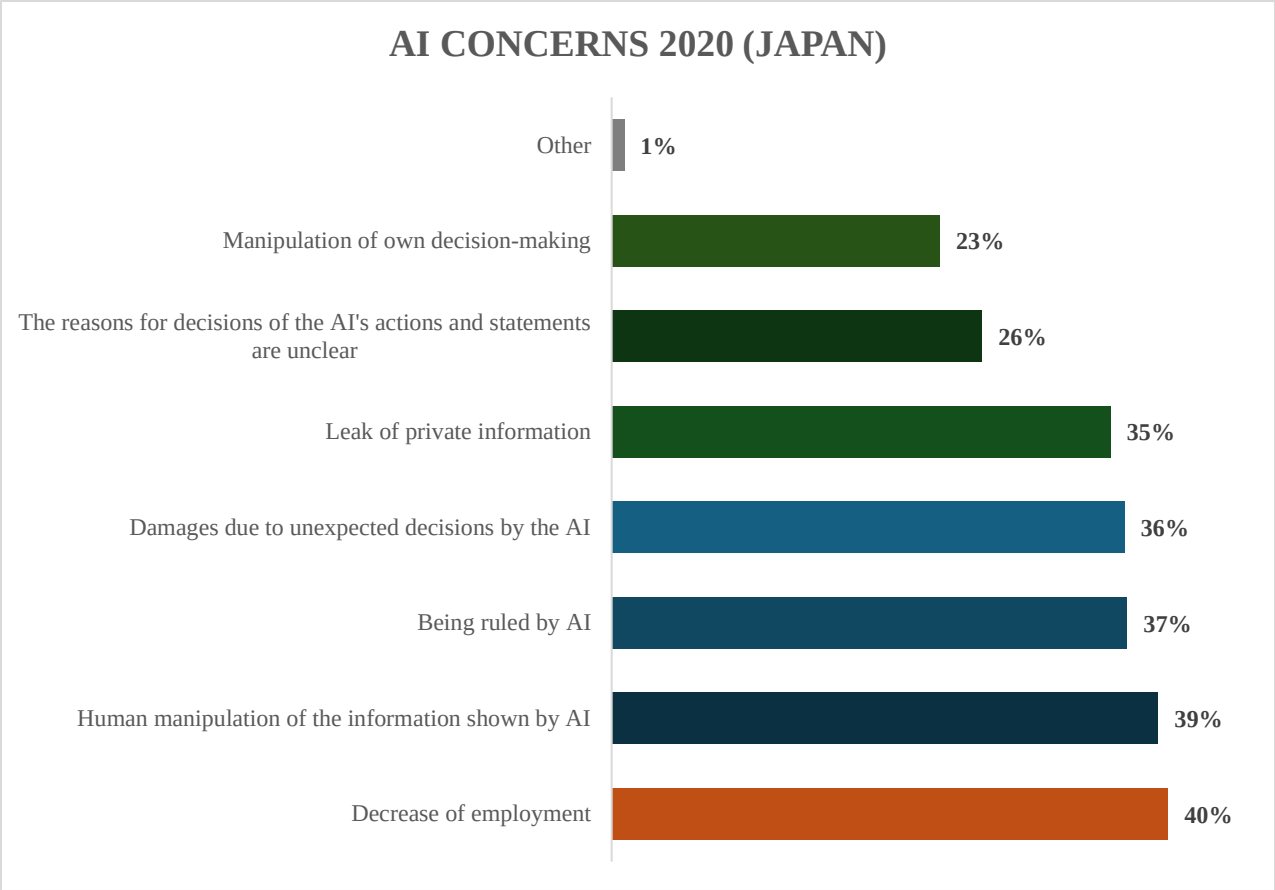



**Figure 2.11.** In Japan in 2020, most prevalent concerns about artificial intelligence. (Statista, MS&AD InterRisk Research & Consulting 2021).

Based on a December 2020 survey, nearly 40 percent of respondents in Japan expressed concerns about the possible decline in employment due to the implementation of artificial intelligence (AI). Additionally, almost 39 percent were worried about human manipulation of information presented by AI.

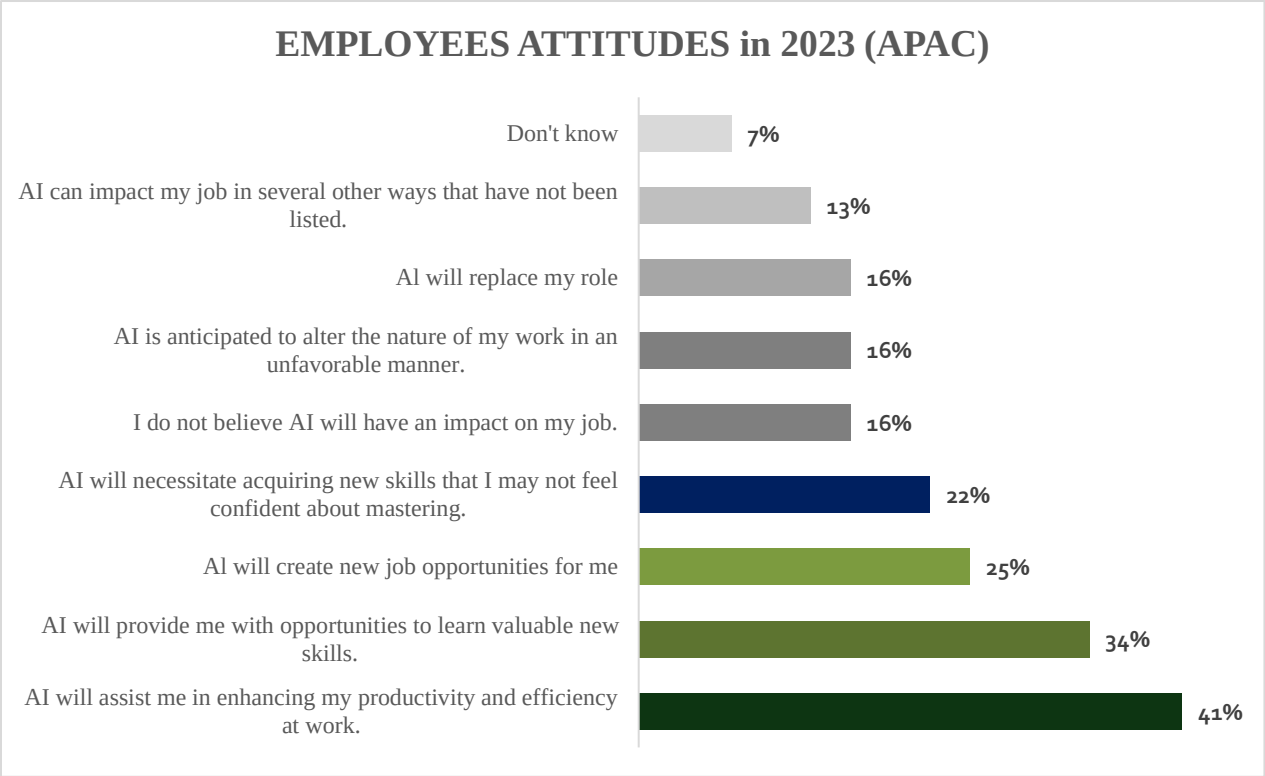



**Figure 2.12.** Perspectives on the impact of AI on employee careers over the next five years in the APAC region (Statista, PwC US 2023).

'The question: What impact, if any, do you expect AI to have on your career in the next five years?'

In 2023, a survey was conducted among individuals working in the Asia-Pacific region to measure the impact of artificial intelligence in the coming years. According to the survey results, 41% of the participants mentioned the positive effects of AI, believing it would increase their productivity and efficiency. Meanwhile, 16% of the respondents were hesitant about AI development, fearing it might take away their current jobs. Another 16% approached AI development cautiously, concerned that it could negatively affect the nature of their jobs.

## 2.5. ARTIFICIAL INTELLIGENCE TASK PERFORMANCE

The use of AI-based applications in corporate work environments has led to various concerns and discussions. Due to the advanced nature of AI analyses, it can thoroughly monitor and analyze employee performance, support development and production, generate personalized responses, and ensure that all these processes are completed consistently and accurately (Heaven, 2020).

The mentioned features are believed to significantly contribute to improving the tasks and job performance of individuals working in corporate firms (Colangelo, 2022). However, the implementation of AI-based applications without specific regulations and standards, particularly the lack of transparency in these processes, is thought to undermine trust in the balance of power within companies. Therefore, there are substantial concerns in this area (Bughin and Manyika, 2019).

The use of AI-based applications as tools, particularly in managerial areas, has caused concerns about fairness and trust among individuals working in corporate firms. Due to the environment of distrust regarding workplace surveillance, a negative perception may develop, adversely affecting the work environment (Cheatham, Javanmardian, and Samandari, 2019; Premuzic, Wade, and Jordan, 2018). Consequently, this may potentially impact employee performance, leading to negative outcomes (Carpenter, 2019; Roe, 2018; Teich, 2019).

In today's corporate environment, companies encounter various concerns and problems when using AI-based applications to assess employee performance. If the feedback generated by AI regarding employee performance is disclosed to employees, it may lead to various issues and insufficient efficiency. Additionally, employees have certain rights concerning information security and the freedom to know these rights. Therefore, it is mandatory for companies to declare this issue to their employees (MacCarthy, 2020).

While anecdotal evidence and industry reports abound, a systematic examination of this trade-off is absent from the academic literature. This critical gap in knowledge leaves us without a clear understanding of how AI feedback impacts employee performance, be it positive or negative. Furthermore, companies lack guidance on mitigating potential drawbacks associated with employee awareness of AI use.

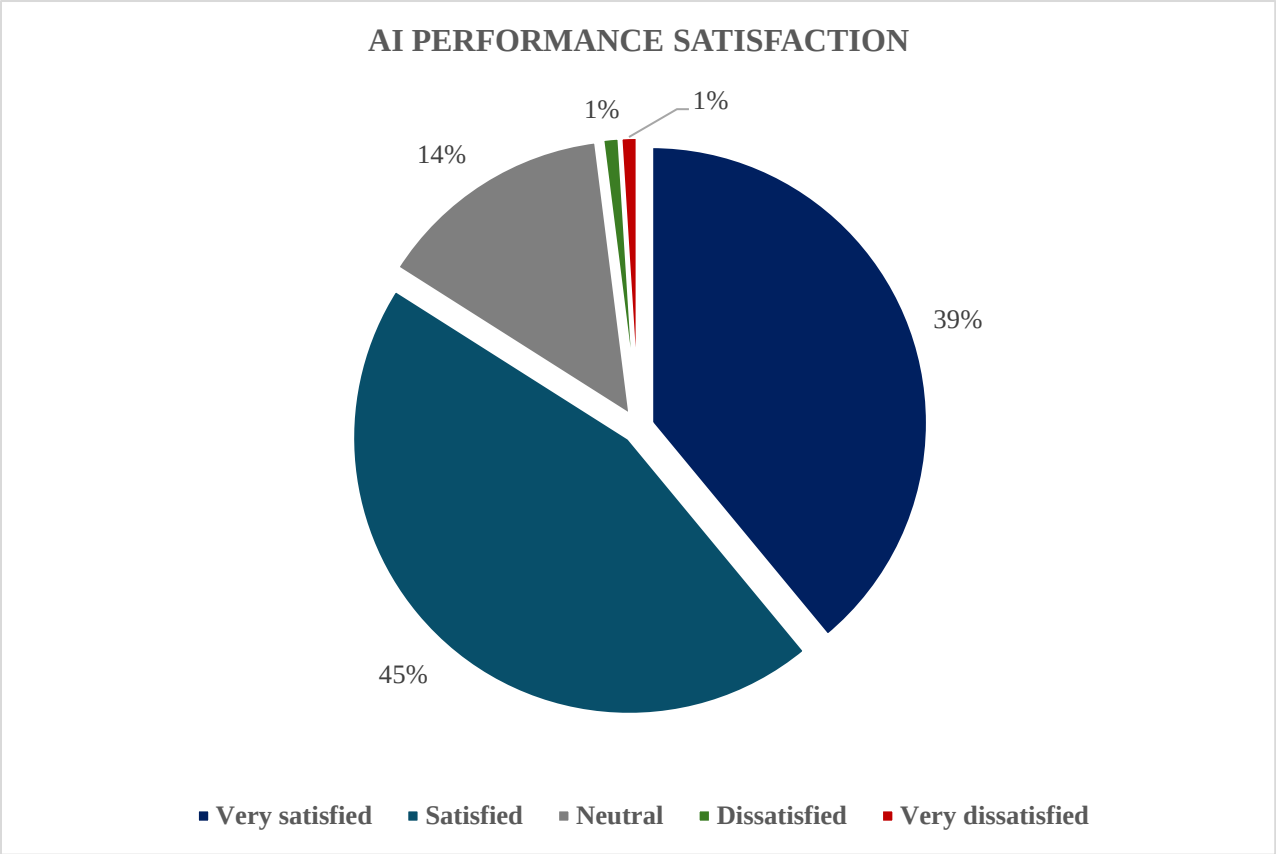



**Figure 2.13.** Levels of satisfaction with AI-generated travel recommendations in the USA and Canada (Statista, Oliver Wyman 2023).

A survey conducted in August 2023 examined the satisfaction levels of leisure travelers in the United States and Canada with the recommendations provided by generative artificial intelligence (AI). Overall, 45 percent of respondents reported being satisfied with the quality of AI recommendations, with 39 percent of the sample stating they were very satisfied.

# 3. METHODOLOGY

## 3.1. RESEARCH OBJECTIVE

The research questions how artificial intelligence-based applications affect employee performance in workplaces and investigates the mediating role of employees' attitude and trust. It aims to show how these effects arise through a variety of specific factors. The findings of the research will provide valuable information to businesses about increasing the effectiveness of artificial intelligence-based applications.

## 3.2. THEORETICAL FRAMEWORK OF THE RESEARCH

This study leverages a straightforward conceptual framework centered on the relationship between independent and dependent variables.

The following figure illustrates the proposed model, which is grounded in the theoretical foundation established through the Artificial Intelligence Understanding and Artificial Intelligence Task Performance are the bases for the hypotheses addressed below.

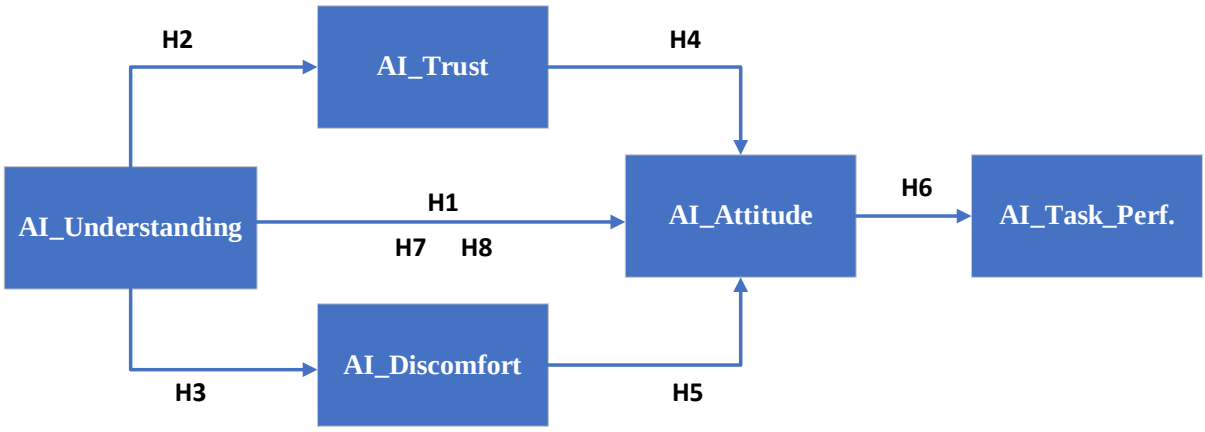



**Figure 3.1.** Theoretical framework of the research.

The hypotheses are stated at below.

**Table 3.1.** The expressions of hypotheses.

| **Hypotheses** | |
|---|---|
| **H1:** | There is a positive relationship between AI_Understanding and AI_Attitude |
| **H2:** | There is a positive relationship between AI_Understanding and AI_Trust |
| **H3:** | There is a negative relationship between AI_Understanding and AI_Discomfort |
| **H4:** | There is a positive relationship between AI_Trust and AI_Attitude |
| **H5:** | There is a negative relationship between AI_Discomfort and AI_Attitude |
| **H6:** | There is a positive relationship between AI_Attitude and AI_Task Performance |
| **H7:** | AI_Understanding has an indirect effect on AI_Attitude through AI_Trust |
| **H8:** | AI_Understanding has an indirect effect on AI_Attitude through AI_Discomfort |

## 3.3. SAMPLE SELECTION AND DATA COLLECTION

### 3.3.1. Selection of Sample

The data for this research was collected from a team within a leading private sector corporation in Turkey actively utilizing artificial intelligence (AI) applications. Participation in the study was voluntary.

A quantitative research design was employed, utilizing a five-point Likert scale for all survey items.

The survey of the research consists of 37 items. The scale prepared on Understanding Artificial Intelligence consists of 9 items (Chowdhury, Budhwar, Dey, Joel-Edgar, & Abadie, 2022). It consists of 11 items on Trust in Artificial Intelligence (Chowdhury, Budhwar, Dey, Joel-Edgar, & Abadie, 2022). The scale prepared on Artificial Intelligence Attitude includes of 5 elements (Sindermann et al., 2020). It consists of 3 items on Artificial Intelligence Disorder (Yu & Li, 2022). It consists of 9 items on Artificial Intelligence Task Performance (Goodman & Svyantek, 1999).

Statistical Package for Social Sciences (SPSS) will be used to analyze the Data.

### 3.3.2. Data Collection

Primary data was collected through survey 'Google Forms'. The survey instrument was developed based on the theoretical framework established through the comprehensive literature review conducted during the training phase.The form was sent to participants via instant message application and e-mail. 106 people completed the survey in April 2024. However, due to inconsistencies in the responses, 96 participants were included in the analyses. The survey was designed in a way that did not leave any question of the participants unanswered. The collected data were imported into SPSS, a statistical software program, to facilitate the necessary analysis and evaluation.

## 3.4. QUESTIONNAIRE DESIGN AND INSTRUMENTS

The questionnaire was prepared to investigate the effects of artificial intelligence-based applications on whether they increase employee performance, what is the mediating role of trust and discomfort.

The survey instrument commenced by collecting data on demographic characteristics, including age, gender, city of residence, and educational attainment.

The following statistics are derived from an analysis of 96 valid survey responses. Gender was queried for males and females. It was revealed that 39.6 percent of the 96 valid responses were female, and 60.4 percent were male.

Education was questioned in terms of high school, associate degree, bachelor's degree, master's degree and doctorate. In the question regarding education, 3.7 percent said high school, 1 percent had an associate degree, 67.9 percent had a university degree, 26.4 percent had a master's degree, and 1 percent had a doctorate degree.

The questions in the survey were taken from previous researchers. Items were examined on a five-point Likert scale ranging from 1= Strongly Disagree, 2= Disagree, 3= Neither Agree nor Disagree, 4= Agree, 5= Strongly Agree.

There are different numbers of questions to be answered for each topic in the research. Each of these topics is based on a five-point Likert scale.

The survey of the research consists of 37 items. The scale prepared on Understanding Artificial Intelligence consists of 9 items (Chowdhury, Budhwar, Dey, Joel-Edgar, & Abadie, 2022). It consists of 11 items on Trust in Artificial Intelligence (Chowdhury, Budhwar, Dey, Joel-Edgar, & Abadie, 2022). The scale prepared on Artificial Intelligence Attitude consists of 5 items (Sindermann et al., 2020). It consists of 3 items on Artificial Intelligence Disorder (Yu & Li, 2022). It consists of 9 items on Artificial Intelligence Task Performance (Goodman & Svyantek, 1999).

Details and sources of questions for each construct are available in Appendix B.

# 4. RESEARCH FINDINGS

This chapter consists of two sections: Demographic Profile and Statistical Analysis.

## 4.1. DEMOGRAPHIC PROFILE OF SAMPLE

This study reports descriptive statistics on age, gender, and educational level of the participants, based on 96 valid survey responses.

Since the age-related question is open-ended, many ages have emerged. The ages of the participants range from 22 to 54.

The gender of the respondents is shown in Table 4.1. It was revealed that 39.6 percent of the 96 valid answers were women and 60.4 percent were men.

**Table 4.1.** Gender of the Respondents.

| Gender | Frequency | Percentage (%) |
|---|---|---|
| **Female** | 36 | 37.5% |
| **Male** | 60 | 62.5% |
| **Total** | 96 | 100.0% |

Different ranges were determined for the age-related question. Participants made their age selection according to the range they were in. The age range in the relevant unit in the corporate company where the study was conducted varies between 22 and 54 years.

Of the 96 participants, 56.3% are aged 20-29, 24% are aged 30-39, 10.4% are aged 40-49, and 9.4% are over 50 years old.

**Table 4.2.** Age Interval of the Respondents.

| Age | Frequency | Percentage (%) |
|---|---|---|
| **20-29** | 54 | 56.3% |
| **30-39** | 23 | 24.0% |
| **40-49** | 10 | 10.4% |
| **50+** | 9 | 9.4% |
| **Total** | 96 | 100.0% |

Generation classification was made according to the age range of the candidates participating in the study. Looking at Table 4.3., it can be said that the 20-29 age range in the research period is included in the Z generation, and those aged 30 and above are included in the X-Y generation.

**Table 4.3.** Generations of the Respondents

| Generation | Year of Birth |
|---|---|
| **X-Generation** | 1960 - 1980 |
| **Y-Generation** | 1980 - 1995 |
| **Z-Generation** | 1995-2010 |

The research participants were found to reside in Istanbul, various cities across Turkey (e.g., Izmir, Duzce), and several cities abroad.

Of the 96 participants, 75% live in Istanbul, 19.8% live in different cities across Turkey, and 5.2% live in various regions abroad.

**Table 4.4.** Residentials of the Repondents.

| Residency | Frequency | Percentage (%) |
|---|---|---|
| **Istanbul** | 72 | 75.0% |
| **Out of Ist** | 19 | 19.8% |
| **Abroad** | 5 | 5.2% |
| **Total** | 96 | 100.0% |

The participants reported their education levels through multiple-choice questions. There were five options: high school graduate, associate degree graduate, bachelor's degree graduate, master's degree graduate, and doctoral degree graduate.

The majority of the 96 participants, 66.7%, are university graduates, and 28.1% have a master's degree.

**Table 4.5.** Education Levels of the Respondents.

| Education Level | Frequency | Percentage (%) |
|---|---|---|
| **High School** | 3 | 3.1% |
| **Associate's** | 1 | 1.0% |
| **Bachelor's** | 64 | 66.7% |
| **Master's** | 27 | 28.1% |
| **Doctorate** | 1 | 1.0% |
| **Total** | 96 | 100.0% |

## 4.2. TEST OF NORMALITY

According to George and Mallery (2010), skewness and kurtosis values between -1.5 and +1.5 in normality tests indicate a normal distribution (George & Mallery, 2010). Additionally, as shown in the example below, the Q-Q Plot was examined, and normal distribution was assumed.

**Table 4.6.** The result of normality test.

**TEST OF NORMALITY**

| | Min. | Max. | Average | St. Deviation | Skewness | Kurtosis |
|---|---|---|---|---|---|---|
| **AI_Attitude** | 1.25 | 5 | 3.65 | 0.87 | -0.65 | 0.23 |
| **AI_Understanding** | 1.71 | 5 | 4.09 | 0.62 | -0.76 | 1.5 |
| **AI_Trust** | 1.2 | 5 | 3.7 | 0.75 | -0.84 | 1.15 |
| **AI_Discomfort** | 1 | 5 | 3.48 | 1.01 | -0.61 | -0.16 |
| **AI_TaskPerformance** | 1 | 5 | 3.13 | 0.77 | -0.01 | 0.04 |

## 4.3. EXPLORATORY FACTOR ANALYS AND RELIABILITY ANALYSIS1

An Exploratory Factor Analysis (EFA) was employed to investigate the latent constructs underlying the data and to determine the number of factors that adequately represent the variables. Prior to performing EFA, the normality of the data was assessed. According to George and Mallery (2010), skewness and kurtosis values between -1.5 and +1.5 indicate normal distribution. Additionally, the Q-Q plot was examined, and a normal distribution was assumed.

**Table 4.7.** The exploratory factor analysis of the constructs.

| Factor Name | Factor Items | Factor Loading | Reliability | %Variance |
|---|---|---|---|---|
| **AI_Attitude** | Att_3 | 0,836 | 0,804 | 63.200 |
| | Att_4 | 0,804 | | |
| | Att_2 | 0,779 | | |
| | Att_1 | 0,759 | | |
| **AI_Understanding** | Und_7 | 0,910 | 0,929 | 70.517 |
| | Und_9 | 0,894 | | |
| | Und_6 | 0,879 | | |
| | Und_8 | 0,854 | | |
| | Und_5 | 0,819 | | |
| | Und_3 | 0,778 | | |
| | Und_1 | 0,729 | | |
| **AI_Trust** | Tru_11 | 0,899 | 0,936 | 64.426 |
| | Tru_6 | 0,871 | | |
| | Tru_7 | 0,858 | | |
| | Tru_5 | 0,830 | | |
| | Tru_8 | 0,796 | | |
| | Tru_4 | 0,778 | | |
| | Tru_1 | 0,765 | | |
| | Tru_3 | 0,763 | | |
| | Tru_9 | 0,758 | | |
| | Tru_2 | 0,673 | | |

Table 4.7. The continuation of is below.

| | | | | |
|---|---|---|---|---|
| **AI_Discomfort** | Dis_1 | 0,949 | 0,889 | 90.038 |
| | Dis_3 | 0,949 | | |
| **AI_Task_Performance** | Tperf_3 | 0,855 | 0,908 | 60.534 |
| | Tperf_2 | 0,841 | | |
| | Tperf_1 | 0,794 | | |
| | Tperf_5 | 0,788 | | |
| | Tperf_7 | 0,771 | | |
| | Tperf_4 | 0,721 | | |
| | Tperf_8 | 0,657 | | |
| **KMO and Bartlett's Test** | | | | |
| Kaisen-Meyer-Olkin Measure of Sampling Adequacy. | | | | 0,881 |
| Bartlett's Test of Sphericity | | | Approx. Chi-Square | 2530,97 |
| df | | | | 435 |
| Sig. | | | | 0,00 |

The EFA results indicate that the data can be effectively represented by five distinct factors. Each factor has high internal consistency, as demonstrated by the Cronbach's Alpha values, and the scree plot further supports the five-factor solution.

Looking at scale reliability checks, Cronbach's Alpha values are 0.804 for AI_Attitude, 0.929 for AI_Understanding, 0.936 for AI_Trust, 0.889 for AI_Discomfort, 0.908 for AI_Task_Performance.

When the variance values are examined separately for each factor, it is understood that it defines the AI_Discomfort scale by 90%, the AI_Understanding scale by 70%, the AI_Trust scale by 64%, the AI_Attitude scale by 63%, and the AI_Task_Performance scale by 61%.

When we look at the scales in total, the total variance rate is defined as 75%.

## 4.4. HYPOTHESES AND ANALYZES

To show the hypotheses,

**Table 4.8.** The expressions of hypotheses.

| **Hypotheses** | |
|---|---|
| **H1:** | There is a positive relationship between AI_Understanding and AI_Attitude |
| **H2:** | There is a positive relationship between AI_Understanding and AI_Trust |
| **H3:** | There is a negative relationship between AI_Understanding and AI_Discomfort |
| **H4:** | There is a positive relationship between AI_Trust and AI_Attitude |
| **H5:** | There is a negative relationship between AI_Discomfort and AI_Attitude |
| **H6:** | There is a positive relationship between AI_Attitude and AI_Task Performance |
| **H7:** | AI_Understanding has an indirect effect on AI_Attitude through AI_Trust |
| **H8:** | AI_Understanding has an indirect effect on AI_Attitude through AI_Discomfort |

In Hypothesis 1, the relationship between Artificial Intelligence Understanding and Artificial Intelligence Attitude was investigated. The analysis results show that the level of understanding of artificial intelligence positively affects attitudes towards artificial intelligence. Additionally, AI_Understanding explains 15.8% of AI_Attitude. ($\beta$=0.398, $R^2$=0.158, F=17.652, $p<0.05$).

**Table 4.9.** The result of regression analysis for the hypothesis 1.

Hypothesis 1. There is a positive relationship between AI_Understanding and AI_Attitude.

| | **B** | **Standard Error** | **β** | **t** | **p** | **$R^2$** | **F** | **p** |
|---|---|---|---|---|---|---|---|---|
| **AI_UND** | **0.555** | **0.132** | **0.398** | **4.201** | **0** | **0.158** | **17.652** | **<0.05** |

H1 between Artificial Intelligence Understanding and Artificial Intelligence Attitude was supported by the data ($\beta$=0.398, $R^2$=0.158, F=17.652, $p<0.05$).

H2 between Artificial Intelligence Understanding and Artificial Intelligence Trust was supported by the data ($\beta$=0.586, $R^2$=0.343, F=49.146, p<0.05).

H3 between Artificial Intelligence Understanding and Artificial Intelligence Discomfort was not supported by the data ($\beta$=0.455, $R^2$=0.079, F=8.034, p<0.05).

H4 between Artificial Intelligence Trust and Artificial Intelligence Attitude was supported by the data ($\beta$=0.768, $R^2$=0.589, F=134.753, p<0.05).

H5 between Artificial Intelligence Discomfort and Artificial Intelligence Attitude was not supported by the data ($\beta$=0.686, $R^2$=0.470, F=83.456, p<0.05).

H6 between Artificial Intelligence Attitude and Artificial Intelligence Task Performance was supported by the data ($\beta$=0.337, $R^2$=0.143, F=15.724, p<0.05).

H7 between Artificial Intelligence Understanding and Artificial Intelligence Attitude through Artificial Intelligence Trust was supported by the data ($\beta^{Und}$=0.079, $\beta^{Tru}$=0.814).

**Table 4.10.** The result of regression analysis for the hypothesis 7.

Hypothesis 7. AI_Understanding has an indirect effect on AI_Attitude through AI_Trust

| | **B** | **Standard Error** | **β** | **t** | **p** | **Zero-order** | **Partial** |
|---|---|---|---|---|---|---|---|
| **AI_UND** | -0.111 | 0.114 | 0.079 | -0.972 | 0.333 | 0.398 | -0.100 |
| **AI_TRU** | 0.940 | 0.094 | 0.814 | 9.974 | 0.000 | 0.768 | 0.719 |

H8 between Artificial Intelligence Understanding and Artificial Intelligence Attitude through Artificial Intelligence Discomfort was supported by the data ($\beta^{Und}$=0.223, $\beta^{Tru}$=0.623).

#### 4.4.1.1. Regression Analyzes

After hypotheses, at the below table, regression analysis was done. It is investigated whether effects of AI_Understanding, AI_Trust and AI_Discomfort has an effect on AI_Attitude or not.

**Table 4.11.** Regression Analysis.

The effect of AI_Understanding, AI_Trust, AI_Discomfort on AI_Attitude.

**I.V.:** UND, TRU, DIS → **D.V.:** ATT

| | **B** | **Std. Error** | **β** | **t** | **p** | **Zero-order** | **Partial** |
|---|---|---|---|---|---|---|---|
| **AI_UND** | -0.068 | 0.102 | -0.048 | -0.660 | 0.511 | 0.398 | -0.069 |
| **AI_TRU** | 0.679 | 0.099 | 0.588 | 6.858 | 0.000 | 0.768 | 0.582 |
| **AI_DIS** | 0.310 | 0.062 | 0.361 | 4.985 | 0.000 | 0.686 | 0.461 |

Understanding of artificial intelligence (AI_UND) does not significantly influence attitude towards artificial intelligence (AI_ATT) (statistically insignificant with a t-value of -0.660). This is further supported by the β coefficient (-0.048) and the low partial correlation (-0.069).

Level of understanding of artificial intelligence has a negative and insignificant effect on attitude towards artificial intelligence.

Trust in artificial intelligence (AI_TRU) significantly and positively influences attitude towards artificial intelligence (AI_ATT) (statistically significant with a t-value of 6.858). The β coefficient (0.588) is high, indicating that trust in artificial intelligence significantly explains attitude towards artificial intelligence.

The zero-order correlation (0.768) and partial correlation (0.582) support this positive and significant relationship.

Discomfort towards artificial intelligence (AI_DIS) significantly and positively influences attitude towards artificial intelligence (AI_ATT) (statistically significant with a t-value of 4.985). The β coefficient (0.361) indicates that the level of discomfort towards artificial intelligence has a significant impact on attitude towards artificial intelligence.

The zero-order correlation (0.686) and partial correlation (0.461) support this positive and significant relationship.

Also, at the second regression analysis, independent variable is AI_Attitude and dependent variable is AI_Task_Performance. The results of the analysis were evaluated at the below.

**Table 4.12.** Regression Analysis.

The effect of AI_Attitude on AI Task Performance

**I.V.:** ATT → **D.V.:** TPERF

| | **B** | **Standard Error** | **β** | **t** | **p** | **$R^2$** | **F** | **p** |
|---|---|---|---|---|---|---|---|---|
| **AI_ATT** | 0.337 | 0.085 | 0.379 | 3.965 | 0.000 | 0.143 | 15.724 | <0.05 |

A positive attitude towards artificial intelligence (AI_ATT) has a positive and significant impact on performance (AI_TPERF). This indicates that a positive attitude towards artificial intelligence can contribute to increased performance.

The $R^2$ value also shows that attitude towards artificial intelligence explains 14.3% of the variance in performance and that the model is significant.

For the general analysis of the model, mediation analysis should be done, and before that Hayes's models were examined in detail.

### 4.4.2. Mediation Analyzes

For mediation analyses, Andrew F. Hayes's book Mediation, Moderation and Conditional Process Analysis was used. Model 4, among the models in the mentioned book, was chosen in accordance with the model in this research. Separate mediation analyzes were conducted for the upper part of the model designed in the research and separately for the lower part. The results of the analyzes are shown in the tables and figures below.

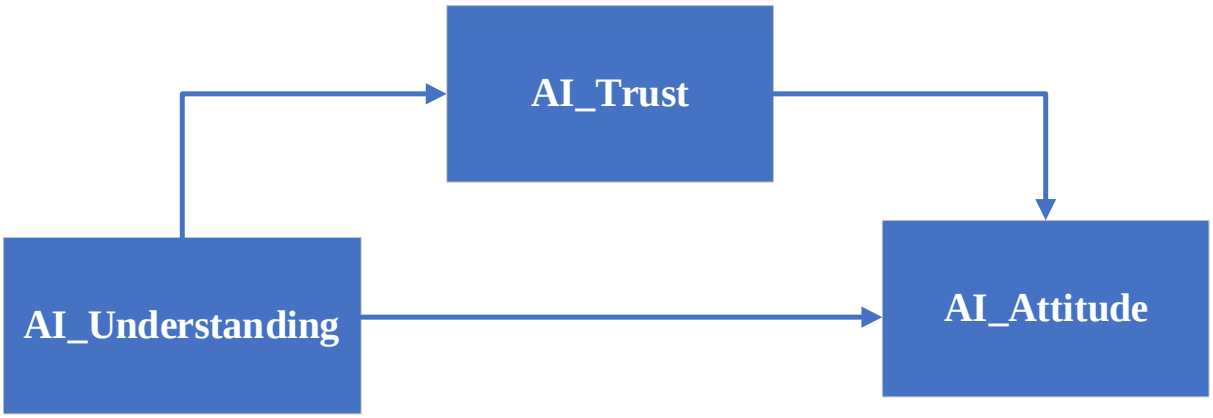



**Figure 4.1.** Theoretical Framework for the mediation analysis 1.

As seen in the figure, the mediating role of AI_Trust will be examined. For the analysis, the variables stated at the below table.

**Table 4.13.** Definitions of the Mediation Analysis

| **Definitions** | |
|---|---|
| **Model** | 4 |
| **Y** | AI_ATT |
| **X** | AI_UND |
| **M** | AI_TRU |
| **Sample Size** | 96 |

Similar to the results found in the regression analyses, it is observed in TABLE XX that AI_Understanding has a significant effect on AI_Trust. Therefore, the condition of M being a mediator variable is met. (β=0.586, p=0.000)

**Table 4.14.** The result of regression analysis.

There is a positive relationship between AI_Understanding and AI_Trust

| | **B** | **Standard Error** | **β** | **t** | **p** | **$R^2$** | **F** | **p** |
|---|---|---|---|---|---|---|---|---|
| **AI_UND** | 0.707 | 0.101 | 0.586 | 7.010 | 0.000 | 0.343 | 49.146 | <0.05 |

Similarly, as in the regression analyses, it is observed in Table XX that AI_Understanding has a significant effect on AI_Attitude. (β=0.398, p=0.000)

**Table 4.15.** The result of regression analysis.

There is a positive relationship between AI_Understanding and AI_Attitude

| | **B** | **Standard Error** | **β** | **t** | **p** | **$R^2$** | **F** | **p** |
|---|---|---|---|---|---|---|---|---|
| **AI_UND** | 0.555 | 0.132 | 0.398 | 4.201 | 0.000 | 0.158 | 17.652 | <0.05 |

**Table 4.16.** The model summary of the regression analysis.

Model Summary

| R | $R^2$ | MSE | F | df1 | df2 | p |
|---|---|---|---|---|---|---|
| **0.770** | 0.593 | 0.3168 | 0.678 | 2 | 93.000 | 0.000 |

Based on the analysis results, it is concluded that AI_Trust has a significant effect on AI_Attitude, indicating that AI_Trust (M) is at least a partial mediator. Additionally, as seen in the analysis, the significant effect of AI_Understanding on AI_Attitude disappears (AI_Und p=0.334), leading to the conclusion that AI_Trust (M) is a full mediator.

**Table 4.17.** The model of the regression analysis.

Model

| | Coeff | Standard Error | t | p | LLCI | ULCI |
|---|---|---|---|---|---|---|
| **AI_UND** | -0.111 | -0.114 | -0.972 | 0.334 | -0.337 | 0.115 |
| **AI_TRU** | 0.941 | 0.094 | 9.974 | 0.000 | 0.753 | 1.128 |

According to the analyzes, Lower Limit Confidence Interval and Upper Limit Confidence Interval are shown at the tables below.

**Table 4.18.** Analysis of the indirect effect between AI_Understanding and AI_Attitude.

Indirect effect of AI_Understanding on AI_Attitude

| | Effect | BootSE | Boot LLCI | Boot ULCI |
|---|---|---|---|---|
| **AI_TRU** | 0.665 | 0.138 | 0.400 | 0.943 |

On the other part of the model, at the lower side, the interactions between, AI_Understanding, AI_Discomfort and AI_Attitude was evaluated.

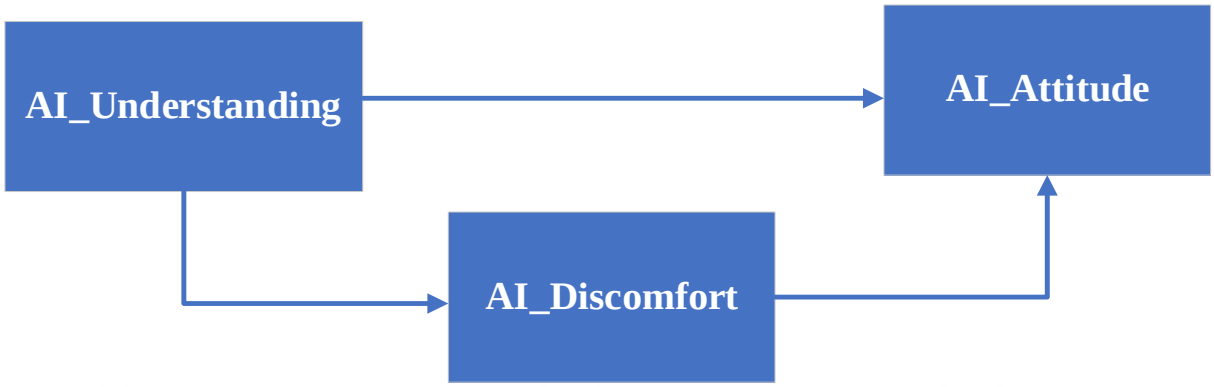



**Figure 4.2.** Theoretical Framework for the mediation analysis 2.

Like regression analysis, the results are at the below table. (β=0.281, p=0.006)

**Table 4.19.** Mediation analysis table.

There is a negative relationship between AI_Understanding and AI_Discomfort

| | **B** | **Standard Error** | **β** | **t** | **p** | **$R^2$** | **F** | **p** |
|---|---|---|---|---|---|---|---|---|
| **AI_UND** | 0.455 | 0.161 | 0.281 | 2.834 | 0.006 | 0.079 | 8.034 | 0.006 |

Similar analyses were done for AI_Understanding and AI_Attitude. (β=0.398, p=0.000)

**Table 4.20.** Mediation analysis table.

There is a positive relationship between AI_Understanding and AI_Attitude

| | B | Standard Error | β | t | p | $R^2$ | F | p |
|---|---|---|---|---|---|---|---|---|
| **AI_UND** | 0.555 | 0.132 | 0.398 | 4.201 | 0.000 | 0.158 | 17.652 | <0.05 |

**Table 4.21.** Mediation analysis table.

Model Summary

| R | $R^2$ | MSE | F | df1 | df2 | p |
|---|---|---|---|---|---|---|
| **0.718** | **0.516** | **0.377** | **49.573** | **2** | **93.000** | **0.000** |

According to the analysis results, it was concluded that AI_Discomfort had a significant effect on AI_Attitude, indicating that AI_Discomfort (M) is at least a partial mediator. Additionally, as seen in the analysis, the significant effect of AI_Understanding on AI_Discomfort does not disappear, but changes (AI_Und p=0.334). This reveals that AI_Discomfort (M) is a partial mediator.

**Table 4.22.** Mediation analysis table.

Model

| | Coeff | Standard Error | t | p | LLCI | ULCI |
|---|---|---|---|---|---|---|
| **AI_UND** | **0.311** | **0.105** | **2.963** | **0.004** | **0.103** | **0.519** |
| **AI_DIS** | **0.536** | **0.065** | **8.293** | **0.000** | **0.408** | **0.664** |

**Table 4.23.** Indirect effect of AI_Understanding on AI_Attitude Confident Interval.

Indirect effect of AI_Understanding on AI_Attitude

| | Effect | BootSE | Boot LLCI | Boot ULCI |
|---|---|---|---|---|
| **AI_TRU** | **0.665** | **0.138** | **0.400** | **0.943** |

When looking at the hypothesis table that was created as a result of the analyzes, it can be seen that,

**Table 4.24.** The results of the hypotheses.

| **Hypotheses** | | **Results** |
|---|---|---|
| **H1:** | There is a positive relationship between AI_Understanding and AI_Attitude | Supported |
| **H2:** | There is a positive relationship between AI_Understanding and AI_Trust | Supported |
| **H3:** | There is a negative relationship between AI_Understanding and AI_Discomfort | Not Supported |
| **H4:** | There is a positive relationship between AI_Trust and AI_Attitude | Supported |
| **H5:** | There is a negative relationship between AI_Discomfort and AI_Attitude | Not Supported |
| **H6:** | There is a positive relationship between AI_Attitude and AI_Task Performance | Supported |
| **H7:** | AI_Understanding has an indirect effect on AI_Attitude through AI_Trust | Supported |
| **H8:** | AI_Understanding has an indirect effect on AI_Attitude through AI_Discomfort | Supported |

The general relationships of factors are stated at the below table.

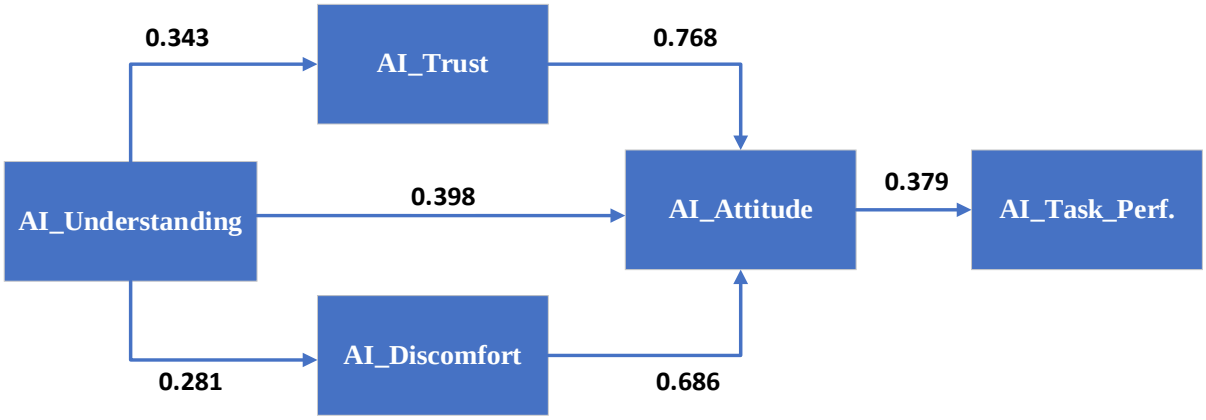



**Figure 4.3.** The relationships of the factors at the theoretical framework.

### 4.5. T-TEST ANALYSIS

As mentioned in the demographic profile section of the study, data on participants' gender, age range, education level, and regions of residence were collected through a survey. The impact of these variables on the identified issues was investigated using the T-Test.

The T-Test analysis was conducted in the SPSS environment, and the results were presented in the table below. The interpretation of the results was based on the assumption of 'p<0.05'.

**Table 4.25.** The result of the T-Test analysis the construct.

| Factor Name | Gender | n | Average | Std. Deviation | t | p |
|---|---|---|---|---|---|---|
| **AI_Attitude** | Female | 36 | 3,50 | 0,80 | -1,318 | 0,191 |
| | Male | 60 | 3,74 | 0,90 | | |
| **AI_Understanding** | Female | 36 | 3,95 | 0,50 | -1,644 | 0,103 |
| | Male | 60 | 4,17 | 0,67 | | |
| **AI_Trust** | Female | 36 | 3,47 | 0,72 | -2,420 | 0,017 |
| | Male | 60 | 3,84 | 0,74 | | |
| **AI_Discomfort** | Female | 36 | 3,04 | 1,00 | -3,545 | 0,001 |
| | Male | 60 | 3,75 | 0,92 | | |
| **AI_Task_Performance** | Female | 36 | 2,84 | 0,73 | -2,943 | 0,004 |
| | Male | 60 | 3,30 | 0,75 | | |

The T-Test analysis revealed that there is a significant difference between gender groups for AI_Trust, AI_Discomfort, and AI_Task_Performance.

However, there is no significant difference based on gender in AI_Attitude and AI_Understanding.

Similarly, an analysis was conducted to determine whether there is a significant difference between age groups regarding the factors, and no significant difference was found. Additionally, an analysis based on education levels was conducted, and no significant difference was found.

# 5. CONCLUSION AND DISCUSSION

## 5.1. CONCLUSION

In the literature, the definition of “Artificial Intelligence” changes with the advancement of technology. Artificial intelligence is the ability of a computer or a computer-controlled robot to perform tasks typically associated with intelligent beings. The term is often used to develop systems endowed with intellectual processes characteristic of humans, such as reasoning, discovering meaning, generalizing, or learning from past experiences.

Artificial intelligence is necessary due to its ability to enhance societal well-being through unbiased and equitable applications in many aspects of life. AI-supported tools, which can be updated and personalized, are applications that will impact the development of individuals and society. For example, applications such as navigation, voice assistants, and e-commerce facilitate individuals' lives. When we look at the areas of use, applications in different fields such as image processing, voice processing, text processing, data processing, and cybersecurity can be observed. (Cumhurbaşkanlığı Dijital Dönüşüm Ofisi, 2024)

Over the past twenty years, we have witnessed significant advancements, particularly in the field of artificial intelligence. Future progress is expected to be much faster and developments much more intense. These advancements are expected to spread worldwide. (Brynjolfsson and McAfee 2014).

However, it is thought that these developments will cause concerns in various categories and demographic classes. (Pew Research Center, 2017).

A total of 106 users of AI-based applications successfully participated in the study by completing an online form. However, upon reviewing the completed surveys, it was found that 10 surveys contained inconsistent answers due to cross-check questions, and therefore, they were excluded from the research. The study was completed with a total of 96 surveys. The participants are individuals working in information technology teams.

When examining the conceptual model, factors such as understanding AI, trust in AI, AI discomfort, attitude towards AI, and AI performance were analyzed. No relationships were found between the factors.

While researching the impact of AI-based applications on task performance in work environments, it was aimed to investigate whether AI knowledge and attitudes towards AI have a significant effect on the process. Additionally, the mediating role of trust and discomfort levels was also aimed to be investigated.

This study is important from various perspectives, as mentioned in different areas of the research. With the development of AI and the increasing presence of AI-based applications in our lives, the importance of studies on employees' interaction with AI has increased.

The literature review revealed a gap in the field of mediating roles and task performance, which is the main focus of the study. The importance of the study lies in identifying this gap in the literature and providing a starting point for future studies. While investigating the significant impact of AI on task performance, the mediating role of trust and discomfort levels is examined as a whole.

The research involved collecting data through an online survey, followed by various demographic analyses, reliability analysis, and exploratory factor analysis. Then, regression analyses were conducted to test the hypotheses, and mediation analysis was performed using Hayes' models for mediation roles.

As mentioned throughout the study, concerns about job loss, the impact of AI on the current work environment, etc., undermine employees' attitudes and trust. In line with these predictions, the analyses revealed a strong and significant effect between trust in AI and attitudes towards AI. Similarly, a strong and significant relationship was found between AI discomfort and attitudes towards AI.

Additionally, a strong and significant relationship was identified between AI understanding and trust in AI. Outside the analyses, significant relationships were also found between AI understanding and attitudes towards AI, attitudes towards AI and AI task performance, and AI understanding and AI discomfort.

Hayes' models were used in the mediation analyses, and the modeling created at the beginning of the study was divided into two parts. In the mediation analysis, it was first understood that trust in AI plays a fully mediating role. Looking at the second part of the modeling, it was found that the level of discomfort plays a partially mediating role according to the analyses.

In addition to the regression analyses, T-Test analysis was used to control demographic outputs. The controls indicated that gender influences task performance, discomfort, and trust in decision-making.

In summary, it was found that AI-based applications have a significant impact on task performance, which is the main focus of the research. Regarding mediation roles, trust in AI serves as a full mediator, while discomfort with AI serves as a partial mediator.

## 5.2. LIMITATIONS AND RECOMMENDATIONS

The research addresses many different topics, and its findings have various implications. Although these results touched on many important issues, there are many limitations to this research paper.

Survey responses, primarily from employees in the relevant institution, may be biased and misrepresent their perspectives.

The fact that the study was conducted only in a single sector, in a single corporate company, reveals the fact that different opinions could not be obtained. It needs to be applied and tested in other sectors to better analyze the effects and mediating roles on task performance. Thus, it will be more accurate to make different comparisons and comparisons.

Secondly, most of the participants in this study live in Istanbul. Different meaningful results may occur on participants residing in different places.

The sample size determined for the research was sufficient at the beginning of the process, but the insufficient number of people in the unit using the relevant application created a limitation for the sample. However, the fact that some participants were not willing, and the answers given were inconsistent and manipulated limited data collection.

As another limitation, considering that the research survey was conducted on Turkish workers, these results may not be valid on workers from different cultures and nationalities. As one solution, future studies can be carried out in other countries.

More studies can be conducted in different sectors to increase the generalizability of the research.

As stated in the demographic analysis, the focus of the research is people whose education level is university graduate. Different findings may occur in samples taken from different education levels. Therefore, further research involving employees of various ages with diverse educational backgrounds is recommended.

In addition, the fact that it was tested in an environment with high inflation rates led to the idea that the results may vary in different environments.

# APPENDICES

## Appendix A. Questionnaire Items with Sources

| **Measurement Items and Sources** |
|---|
| **Construct / Source** |
| **Artificial Intelligence Attitude / (Sindermann et al., 2020)** |
| **AI_Attitude** |
| I fear artificial intelligence. |
| I trust artificial intelligence. |
| Artificial intelligence will destroy humankind. |
| Artificial intelligence will benefit humankind. |
| Artificial intelligence will cause many job losses. |
| **Artificial Intelligence Understanding / (Chowdhury, Budhwar, Dey, Joel-Edgar, & Abadie, 2022)** |
| **AI_Understanding** |
| I understand the capabilities of AI systems. |
| I understand the limitations of AI systems. |
| I understand the context of using AI. |
| I understand what to expect from AI systems. |
| I understand the purpose of using AI. |
| I understand the benefits of using AI for the organisation. |
| I understand the benefits of using AI in my daily job activities. |
| I understand that AI will enhance the efficiency of my work. |
| I understand that AI will enable to accomplish analytical activities efficiently and effectively in my job. |

| Artificial Intelligence Trust / (Chowdhury, Budhwar, Dey, Joel-Edgar, & Abadie, 2022) |
|---|
| **AI_Trust** |
| I have confidence in the use of AI technology. |
| I believe AI technology can facilitate with routine and trivial tasks through automation. |
| I believe my organisation will be able operate AI technology reliably or consistently without failing. |
| I believe that AI technology will consistently operate providing adequate and efficient results within a broad spectrum of processes. |
| I believe AI adoption will result in creation of new jobs. |
| I have a positive attitude towards adoption of AI. |
| I believe AI technology can help in developing new skills which will benefit my career development activities. |
| I have a positive attitude towards its impact of intra-organisational business operations. |
| I believe AI will positively change employee dynamics within the organisation. |
| AI adoption wont result in reduced focus on human skills such as creative intellect in my job. |
| I believe AI adoption will enhance the quality of my work. |

| Artificial Intelligence Task Performance / (Goodman & Svyantek, 1999) |
|---|
| **AI_Task_Performance** |
| Achieves the objectives of the job. |
| Meets criteria for performance. |
| Demonstrates expertise in all job-related tasks. . |
| Fulfills all the requirements of the job. |
| Could manage more responsibility than typically assigned. |
| Appears suitable for a higher level role. |
| Is competent in all areas of the job, handles tasks with proficiency. |
| Performs well in the overall job by carrying out tasks as expected. |
| Plans and organizes to achieve objectives of the job and meet deadlines. |

| Artificial Intelligence Discomfort / (Yu & Li, 2022) |
| --- |
| **AI_Discomfort** |
| The decision made by the AI system makes me feel uncomfortable. |
| The decision made by the AI system makes me feel resistant. |
| The decision made by the AI system makes me feel unsettled. |

**Appendix B. Research Questionnaire in English**

**DO AI-BASED TOOLS**

**INCREASE TASK PERFORMANCE:**

**THE MEDIATING ROLE OF TRUST AND DISCOMFORT**

Dear participant, this survey is designed to evaluate the opinions of employees who use artificial intelligence-based applications on artificial intelligence at various scales and to help them use it effectively. Thank you for sharing your valuable insights.

- Age : 20-29 ( ), 30-39 ( ), 40-49 ( ), 50+
- Gender : Female ( ), Male ( )
- Residency :
- Education Level : High School ( ), Associate's ( ), Bachelor's ( ), Master's ( ), Doctorate ( )

**NOTE:** Please mark the survey below according to your thoughts.

| | Question Label | Strongly Disagree | Disagree | Neither Agree Nor Disagree | Agree | Strongly Agree |
|---|---|---|---|---|---|---|
| **1** | I fear artificial intelligence. | | | | | |
| **2** | I trust artificial intelligence. | | | | | |
| **3** | Artificial intelligence will destroy humankind. | | | | | |
| **4** | Artificial intelligence will benefit humankind. | | | | | |
| **5** | Artificial intelligence will cause many job losses. | | | | | |

Appendix B. The continuation of is below.

| | | | | | | |
|---|---|---|---|---|---|---|
| **6** | I understand the capabilities of AI systems. | | | | | |
| **7** | I understand the limitations of AI systems. | | | | | |
| **8** | I understand the context of using AI. | | | | | |
| **9** | I understand what to expect from AI systems. | | | | | |
| **10** | I understand the purpose of using AI. | | | | | |
| **11** | I understand the benefits of using AI for the organisation. | | | | | |
| **12** | I understand the benefits of using AI in my daily job activities. | | | | | |
| **13** | I understand that AI will enhance the efficiency of my work. | | | | | |
| **14** | I understand that AI will enable to accomplish analytical activities efficiently and effectively in my job. | | | | | |
| **15** | I have confidence in the use of AI technology. | | | | | |
| **16** | I believe AI technology can facilitate with routine and trivial tasks through automation. | | | | | |
| **17** | I believe my organisation will be able operate AI technology reliably or consistently without failing. | | | | | |
| **18** | I believe that AI technology will consistently operate providing adequate and efficient results within a broad spectrum of processes. | | | | | |
| **19** | I believe AI adoption will result in creation of new jobs. | | | | | |
| **20** | I have a positive attitude towards adoption of AI. | | | | | |
| **21** | I believe AI technology can help in developing new skills which will benefit my career development activities. | | | | | |
| **22** | I have a positive attitude towards its impact of intra-organisational business operations. | | | | | |

Appendix B. The continuation of is below.

| | | | | | | |
|---|---|---|---|---|---|---|
| **23** | I believe AI will positively change employee dynamics within the organisation. | | | | | |
| **24** | AI adoption wont result in reduced focus on human skills such as creative intellect in my job. | | | | | |
| **25** | I believe AI adoption will enhance the quality of my work. | | | | | |
| **26** | Achieves the objectives of the job. | | | | | |
| **27** | Meets criteria for performance. | | | | | |
| **28** | Demonstrates expertise in all job-related tasks. | | | | | |
| **29** | Fulfills all the requirements of the job. | | | | | |
| **30** | Could manage more responsibility than typically assigned. | | | | | |
| **31** | Appears suitable for a higher level role. | | | | | |
| **32** | Is competent in all areas of the job, handles tasks with proficiency. | | | | | |
| **33** | Performs well in the overall job by carrying out tasks as expected. | | | | | |
| **34** | Plans and organizes to achieve objectives of the job and meet deadlines. | | | | | |
| **35** | The decision made by the AI system makes me feel uncomfortable. | | | | | |
| **36** | The decision made by the AI system makes me feel resistant. | | | | | |
| **37** | The decision made by the AI system makes me feel unsettled. | | | | | |

## Appendix C. Research Questionnaire in Turkish

**YAPAY ZEKÂ TEMELLİ UYGULAMALAR**
**GÖREV PERFORMANSINI ARTTIRIR MI;**
**GÜVEN VE RAHATSIZLIĞIN ARACI ROLÜ**

Değerli katılımcımız, bu anket, yapay zeka tabanlı uygulamaları kullanan çalışanların çeşitli ölçeklerde yapay zekâya ilişkin görüşlerini değerlendirmek ve yapay zekayı etkin bir şekilde kullanmalarına yardımcı olmak amacıyla hazırlanmıştır. Ankete katılarak araştırmamıza katkıda bulunduğunuz için teşekkür ederiz.

- Yaş : 20-29 ( ), 30-39 ( ), 40-49 ( ), 50+
- Cinsiyet : Female ( ), Male ( )
- İkamet Adresi :
- Eğitim Seviyesi : High School ( ), Associate's ( ), Bachelor's ( ), Master's ( ), Doctorate ( )

**NOT:** Lütfen aşağıdaki anketi düşüncelerinize göre işaretleyiniz.

| | **Soru Etiketi** | **Hiç Katılmıyorum** | **Katılmıyorum** | **Ne Katılıyorum Ne Katılmıyorum** | **Katılıyorum** | **Tamamen Katılıyorum** |
|---|---|---|---|---|---|---|
| **1** | Yapay Zekâdan korkuyorum. | | | | | |
| **2** | Yapay Zekâya güveniyorum. | | | | | |
| **3** | Yapay Zekâ insanlığı yok edecek. | | | | | |
| **4** | Yapay Zekâ insanlığa yardım edecek. | | | | | |
| **5** | Yapay Zekâ iş kayıplarına sebep olacak. | | | | | |

Appendix C. The continuation of is below.

| | | | | | | |
|---|---|---|---|---|---|---|
| **6** | Yapay Zekâ sistemlerinin yeteneklerini anlıyorum. | | | | | |
| **7** | Yapay Zekâ sistemlerinin sınırlarını anlıyorum. | | | | | |
| **8** | Yapay Zekâ kullanmanın bağlamını anlıyorum. | | | | | |
| **9** | Yapay Zekâ sistemlerinden neler beklenebileceğini anlıyorum. | | | | | |
| **10** | Yapay Zekâ kullanmanın amacını anlıyorum. | | | | | |
| **11** | Yapay Zekâ kullanmanın şirketler için faydalarını anlıyorum. | | | | | |
| **12** | Günlük iş aktivitelerimde yapay zekâ kullanmanın faydalarını anlıyorum. | | | | | |
| **13** | Yapay Zekânın işimin verimliliğini arttıracağını anlıyorum. | | | | | |
| **14** | Yapay Zekânın işimde, analitik aktivitelerin verimli ve etkili bir şekilde gerçekleştirilmesine olanak sağlayacağını anlıyorum. | | | | | |
| **15** | Yapay Zekâ teknolojisinin kullanımına güveniyorum. | | | | | |
| **16** | Yapay Zekâ teknolojisinin otomasyon aracılığıyla rutin ve önemsiz görevleri kolaylaştırabileceğine inanıyorum. | | | | | |
| **17** | Şirketimin Yapay Zekâ teknolojisini hatasız, güvenilir ve tutarlı bir şekilde çalıştırabileceğine inanıyorum. | | | | | |
| **18** | Yapay Zekâ teknolojisinin geniş bir yelpazede sürekli olarak yeterli ve verimli sonuçlar sağlayarak çalışacağına inanıyorum. | | | | | |
| **19** | Yapay zekânın benimsenmesinin yeni işlerin oluşturulmasına olanak sağlayacağına inanıyorum. | | | | | |
| **20** | Yapay Zekânın benimsenmesini olumlu karşılıyorum. | | | | | |
| **21** | Yapay Zekâ teknolojisinin, kariyer ilerleyişime fayda sağlayacak yeni yetenekleri geliştirmeme yardımcı olabileceğine inanıyorum. | | | | | |
| **22** | Yapay Zekânın kurumsal işletme operasyonlarına yönelik etkisinin olumlu olduğuna dair bir tutumum var. | | | | | |
| **23** | Yapay Zekânın organizasyon içindeki çalışan dinamiklerini pozitif yönde değiştireceğine inanıyorum. | | | | | |
| **24** | Yapay Zekânın benimsenmesi, yaratıcı zekâ gibi insan becerilerini azaltmaya sebep olmayacaktır. | | | | | |
| **25** | Yapay Zekânın benimsenmesinin, işimin kalitesini arttıracağına inanıyorum. | | | | | |
| **26** | Yapay Zekâ işimin amaçlarını gerçekleştirir. | | | | | |
| **27** | Yapay Zekâ performans kriterlerini karşılar. | | | | | |
| **28** | Yapay Zekâ işle ilgili tüm görevlerde uzmanlığını gösterir. | | | | | |

Appendix C. The continuation of is below

| | | | | | | |
|---|---|---|---|---|---|---|
| **29** | Yapay Zekâ işin tüm gereksinimlerini yerine getirir. | | | | | |
| **30** | Yapay Zekâ genellikle atanan sorumluluklardan daha fazlasını yönetebilir. | | | | | |
| **31** | Yapay Zekâ, daha üst pozisyonlar için uygun gözüküyor. | | | | | |
| **32** | Yapay Zekâ, işin tüm alanlarında yetkindir ve görevleri ustalıkla yönetir. | | | | | |
| **33** | Yapay Zekâ, kendisinden beklenildiği gibi görevleri yerine getirerek genel olarak işte iyi performans gösterir. | | | | | |
| **34** | Yapay Zekâ, hedeflere zamanında ulaşmak için plan yapar ve organize eder. | | | | | |
| **35** | Yapay zekâ sistemi tarafından alınan karar beni rahatsız ediyor. | | | | | |
| **36** | Yapay zekâ sistemi tarafından alınan karar beni dirençli hissettiriyor. | | | | | |
| **37** | Yapay zekâ sistemi tarafından alınan karar beni huzursuz hissettiriyor. | | | | | |

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